

## Press-Out Ink Dispensing System P0040



# Introduction

This manual provides the user with a comprehensive guide to the Pressout Dispenser. It covers various machine configurations, with regard to the number and type of ink stations, and dispense vessels used.

The Pressout Dispenser comprises up to 40 ink containers housed within the machine frame, each with a capacity of 20-100 litres.

Bulk dispensing from 200kg drums can be incorporated using pressout drum dispensing systems sited alongside the main Pressout Dispenser. These may be linked to high or low pressure expansion containers mounted in frames alongside the machine.

The Pressout Dispenser can dispense formulations from 100g up to a weight of 50kg dependant upon specification. The dispense operation is controlled by the PC using Vale Tech's Ink Manager Software. The configurations incorporating all container and dispense valve options are described in this manual.

The manual identifies the requirements for the initial installation of the machine and continues to provide information for the effective operation of the machine on a day-to-day basis including maintenance which ensures a high standard of ink dispensing can be consistently achieved.

The Service section of the manual enables the user to identify spare parts that may need to be ordered for the machine. This product has been manufactured to the highest standards; however, should any difficulties arise, before requesting technical support, a speedier resolution may be reached by referring to the troubleshooting guide. A full set of drawings is also provided to assist in fault finding in the unlikely event of the product developing a fault.

A guide to the Ink Manager software is provided. This describes how it controls machine functions, dispensing ink and the creation and saving of formulations, and provides the user with various levels of stock control options.

The service log at the back of the manual provides contact information. Should assistance be required please refer to the details supplied within this section. Forms available in this section allow the service history of the machine to be recorded for reference.

# Vale-Tech Pressout Ink Dispensing System

	Introduction	2
	Contents	3
	Certificate of Conformity	8
	User Manual	9
<b>1</b>	<b>Installation</b>	<b>10</b>
	1.1 Connection Requirements	10
	1.1.1 Electrical Supply	10
	1.1.2 Air Supply	10
	1.1.3 Hydraulic Pump	11
	1.1.4 PC, Keyboard and Monitor	11
<b>2</b>	<b>Start-Up Procedure</b>	<b>13</b>
	2.1 Switching On System	13
	2.2 Log-on and Dispenser Initialisation	14
	2.3 IDS Beacon Warning Indicator	14
<b>3</b>	<b>IDS Ink Set-Up</b>	<b>15</b>
	3.1 Setting Ink Names	15

# Vale-Tech Pressout Ink Dispensing System

<b>4</b>	<b>Ink Containers</b>	<b>16</b>
4.1	Press Out Ink Containers	17
4.1.1	Dispense Outlet Cap	17
4.1.2	Fitting The Ink Valve	18
4.2	Low Pressure Containers	19
4.2.1	Low Pressure Container Lids	20
<b>5</b>	<b>ConfigurationSettings</b>	<b>22</b>
5.1	Level Sensors	22
5.1.1	Press Out Containers	23
5.2	Setting Ink Levels – High and Low Pressure Containers	25
5.3	Setting Ink Levels – Press Out Drum Dispenser	29
5.4	Priming Pressout Drum Dispenser	29
5.5	Valve Configuration	30
5.6	How Does The Ink Valve Function During a Dispense	32
5.7	What Happens If The Same Ink Is Used In More Than One Of The Ink Supply Containers?	34
5.8	Dispensing Ink	35
<b>6</b>	<b>Hardware Settings</b>	<b>37</b>

# Vale-Tech Pressout Ink Dispensing System

<b>7</b>	Safety Features	38
7.1	Isolator Switch	38
7.2	Emergency Stop Switch	39
7.3	Door Switches	40
7.4	Alarm Sounder	40
<b>8</b>	Balance and Carriage Assembly	41
9.1	Overweigh Protection	42
9.2	Scale Calibration	43
<b>9</b>	Services Cabinets	50
<b>10</b>	Dispenser mechanical operation during the dispense process	52
<b>11</b>	Cleaning and Maintenance	53
11.1	Drip Wipe Assembly (When fitted)	53
11.2	Ink Valves	53
11.3	Carriage Assembly	54
11.4	Low pressure Ink Supply Container & valve	55

# Vale-Tech Pressout Ink Dispensing System

<b>12</b>	Parts Manual - Index	58
	12.1 External Parts	58
	12.2 Carriage Assembly	59
	12.3 Low pressure ink supply container and valve	61
	12.4 High pressure ink supply container and valve	62
	12.5 Pneumatics and Electronics	63
	12.6 Dispense Valve	66
	12.7 Low and high pressure ink container level sensor	69
	12.8 Parts List	70
<b>13</b>	Preventative Maintenance Programme	73
<b>14</b>	Trouble-shooting Guide	74
<b>15</b>	PC Hardware Configuration	78
<b>16</b>	Ink Manager Hardware Configuration	79
<b>17</b>	Drawings	80
<b>18</b>	Ink Manager Software	81

# Vale-Tech Pressout Ink Dispensing System

<b>19</b>	Service Log	82
	20.1 Contact Information	82
<b>20</b>	Service History	83
	21.1 Machine Fault/Maintenance Log	83

# Declaration of Conformity & Quality

## Vale-Tech Limited Hereby Declares That

Machine: PO-

Project:

Is in conformity with the provisions of the machinery directives as listed below: -

**The Machinery Directive, 98/37/EC** – “Machinery is described in the Directive as "an assembly of linked parts or components, at least one of which moves, with the appropriate actuators, control and power circuits, etc., joined together for a specific application, in particular for the processing, treatment, moving or packaging of a material". The manufacturer is responsible for verifying whether a particular product falls within the scope of the Machinery Directive.”

**The EMC Directive, 89/336/EEC (2004/108/EC)** – “The Directive applies to most electrical and electronic apparatus, that is, finished products and systems that include electrical and electronic equipment.”

**The Low Voltage Directive, 73/23/EEC** – “Broadly the Regulations apply to most consumer, commercial and industrial electrical equipment designed for use within the voltage ranges 50 V ac to 1,000 V ac and 75 V dc to 1,500 V dc.”

**The Pressure Equipment Directive, 97/223/EC** – “The directive covers pressure equipment and assemblies with a maximum allowable pressure greater than 0.5 bar.”

### The following standards have also been taken into account: -

Safety of Machinery – EN953 – Guards – General Requirements  
Safety of Machinery – EN349 – Guards – Minimum gaps to avoid crushing  
Safety of Machinery – EN954-1 – Safety related parts of control systems  
Safety of Machinery – EN60204-1 – Electrical equipment of machinery  
Safety of Machinery – EN292-1/2 – Basic concepts, general principles for design.

### Remarks & restrictions for this declaration

This declaration is no longer valid if any changes are made to the machine, which is not corresponding to the above mentioned standards.

Place and date:

Newmarket 7<sup>th</sup> July 2008

G Adlem:  
C Stapleton:  
J Cadd:  
P Brown:  
M Hughes:  
N Scott:

Mechanical Engineering  
Project Engineering  
Electrical Engineering  
Software Engineering  
Director  
Director

Representing: -  
**Vale-Tech Ltd**  
**12 Depot Road**  
**Newmarket**  
**Suffolk CB8 0AL**





# USER MANUAL

# 1 Installation

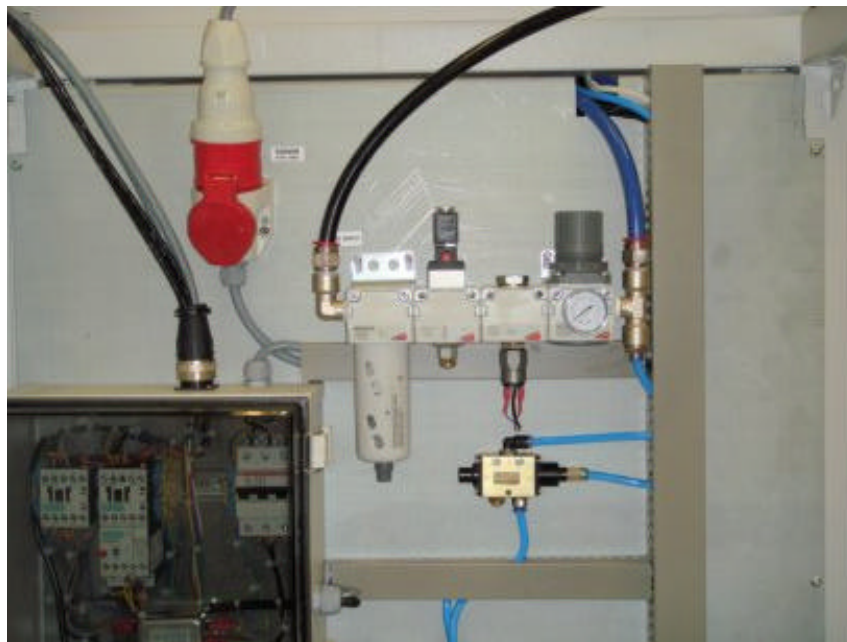
## 1.1 Connection Requirements

### 1.1.1 Electrical Supply

The mains power supply, 3phase, 415volts, 6amp neutral and earth, enters the machine at the end panel above the services cabinets, alongside the incoming air supply. This is connected to the mains power control box located inside the top services cabinet, and feeds a 240volt single phase supply to the internal electrical requirements of the Pressout Dispenser and 3 phase supply to the hydraulic pump.

### 1.1.2 Air Supply

The air supply into the machine must be from a filtered, clean, dry regulated air supply to the air input connector. This is located on the air manifold assembly at the upper left end of the machine. The air is connected via the quick-fit air coupling and requires 8mm hard walled hose for the push fitting. Alternatively, the air supply can also be fitted using soft wall hose and a Jubilee Clip (Use Imp 1/2" bore or Met 12.70mm, Imp 3/4" or Met 19/20mm o/d air hose).



### 1.1.3 Hydraulic pump and manifold

The hydraulic system which operates the pistons for the ink press out system is fed from the hydraulic pump which is located beside the machine. The main hydraulic supply/return feeds are located at the end of the hydraulic manifold.



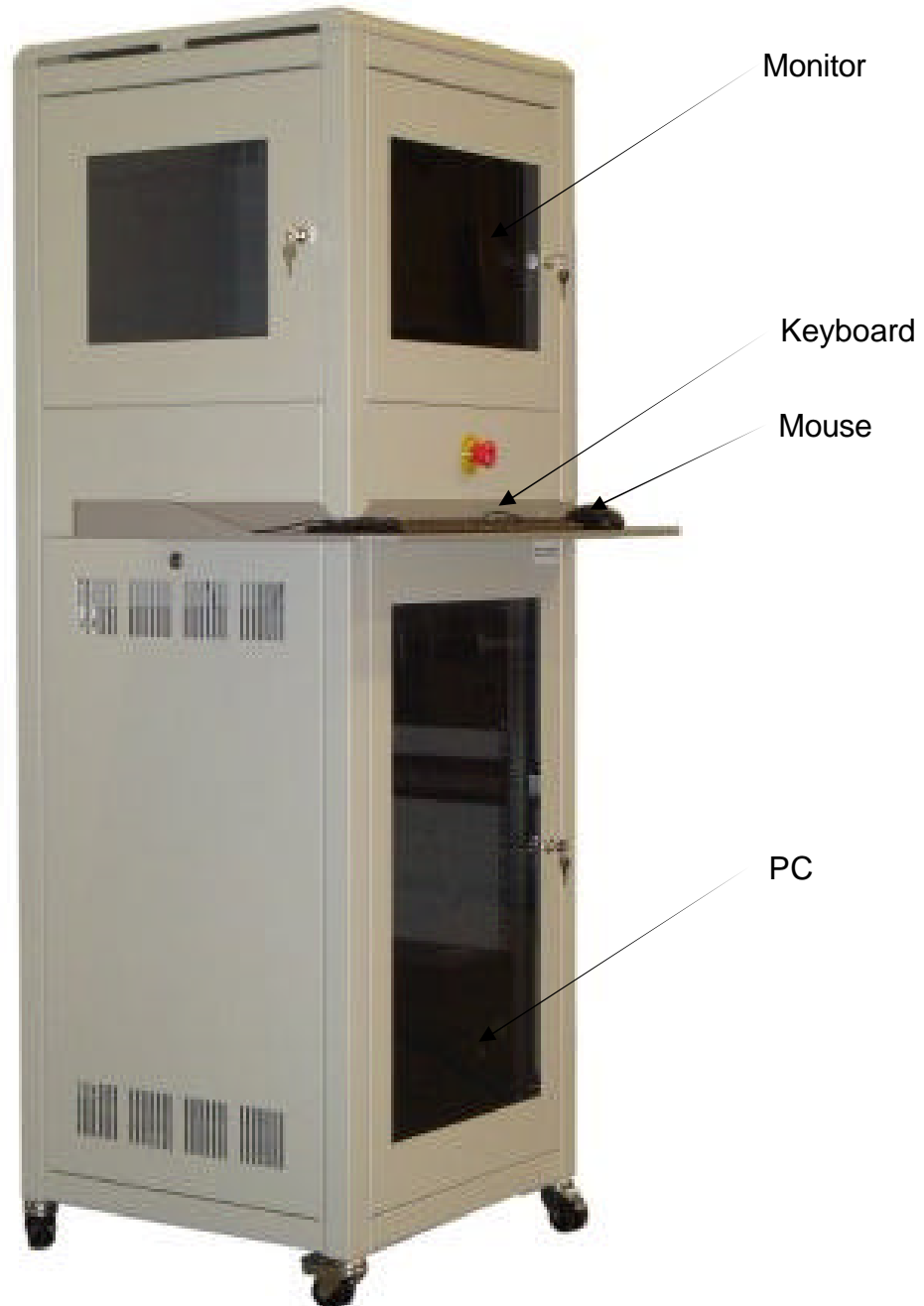
Flow/return hoses



Flow/return hoses

### 1.1.4 PC, keyboard and monitor

The PC is located inside control console, with the monitor and keyboard positioned on the top surface of this cabinet. The PC is preloaded with Vale Tech's Ink Manager software, which provides the operating system for the machine.



## 2 Start-Up Procedure



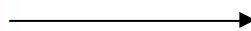
### 2.1 Switching On System

Switch on the dispenser mains power by turning the mains ON/OFF isolator switch on the lower right side of the services cabinet CLOCKWISE to the ON position.

Now turn on the PC and the monitor. The PC is located inside the control console. At this point, the red light on the beacon will be illuminated and the alarm will be sounding.

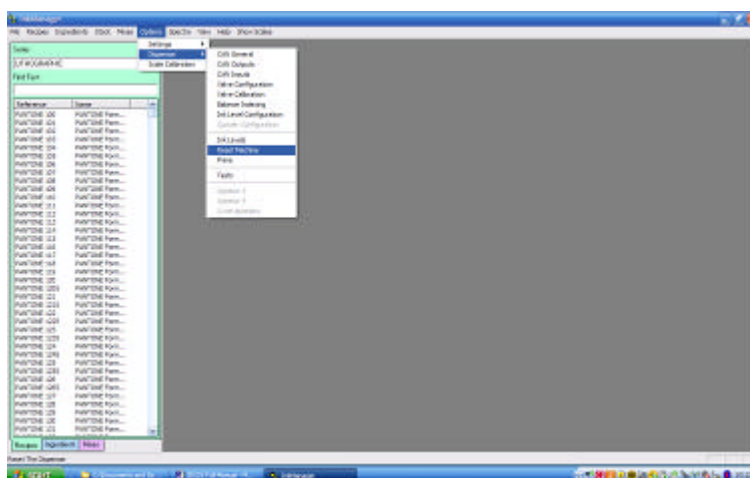
### 2.2 Log-on and Dispenser Initialisation

Once the PC has powered up, launch the Ink Manager Software program and logon. If there are no user accounts, create these by logging on as Administrator (password supplied separately).



## 2.2 Log-on and Dispenser Initialisation (cont)

When Ink Manager opens, a formulation list will appear on screen. The machine requires a reset to be carried out as follows. Highlight 'Options', 'Dispenser', 'Reset'.



After completing the reset process the sounder should stop and the beacon will change from red to combined green and amber. The balance will move to the home position at the left of the machine and the secondary air supply regulator will switch on. Power to the hydraulic pump will be initialised.

If the dispenser does not reset, check that the emergency stop buttons are released and there is no obstruction causing the carriage or scale assembly to jam.

Note: If an emergency-stop button is depressed, release it by turning the button clockwise and allowing it to spring out. Ensure that the button is not depressed further whilst turning it or the button will not release.

## 2.3 IDS Beacon Warning Indicator

**RED:** Indicates emergency stop switch activated or machine in initial power ON state.

**GREEN AND AMBER:** Indicates machine in RESET condition or ready to dispense.



**AMBER:** Indicates the balance is moving.

**GREEN:** Indicates machine is in the process of dispensing ink.

# 3 Ink Set-Up

## 3.1 Setting Ink Names

The reference (or description) for each ink to be used must be allocated to each of the supply containers to be filled, or to each dispense location to be used. The corresponding ink will be put into the container and located in the correct dispense station later. Complete the Ink Reference names in the spaces provided below.

Some machines may have a pre-determined list setting out which ink should be placed in each dispense location. In this case, the information will be supplied in conjunction with this manual.

Cont' No.	Ink Reference	%age Pressure	Cont' No.	Ink Reference	%age Pressure
1			26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13			38		
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

%age Pressure settings see page 31

## 4 Ink containers

The machine may support various types of container from which ink will be dispensed. Within the main body of the machine, ink is dispensed from stainless steel ink containers by means of a dispense valve mounted on the side above the base. Additional vessels of liquid or free flowing additives can be housed in 25litre low pressure containers alongside the machine in container frames. Bulk dispensed inks can be supplied by 200litre drums, usually into a high pressure 25litre header tank which then feeds the dispense valve, by a pumped drum dispensing system.

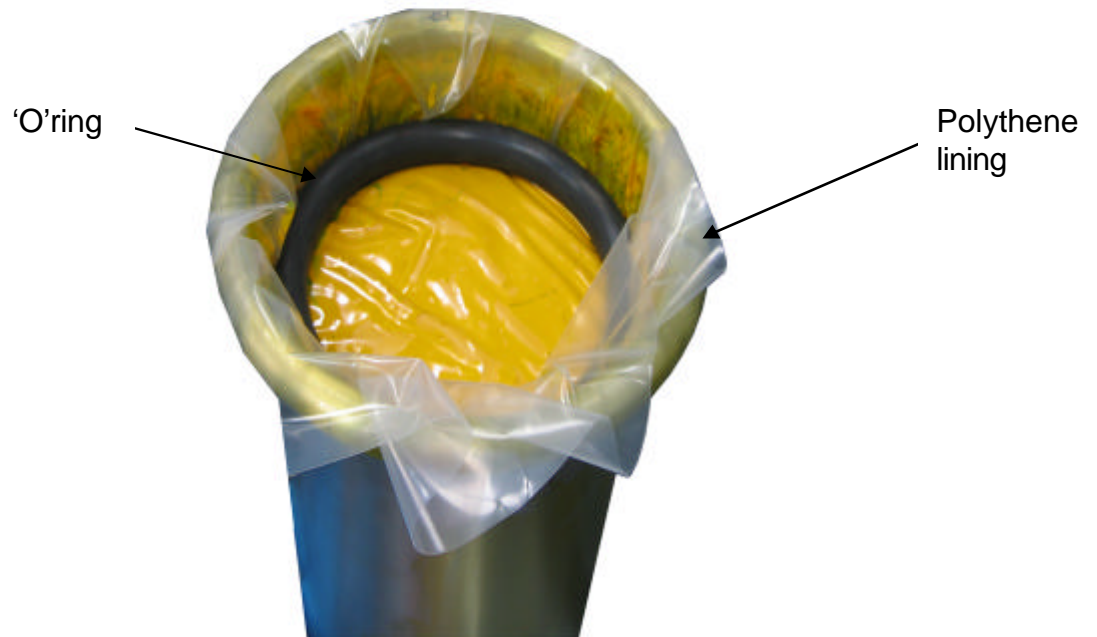
### 4.1 Press out ink containers

The press out ink container is used where the dispensing of high viscosity low flow rate paste inks is required. The containers are usually filled by the ink company, and are supplied to the user with a sealed lid, and have a sealing cap in place over the dispense outlet, which may differ slightly from the one shown. The ink is dispensed by means of a hydraulically operated piston creating pressure within the container, allowing the ink to pass through the dispense valve.



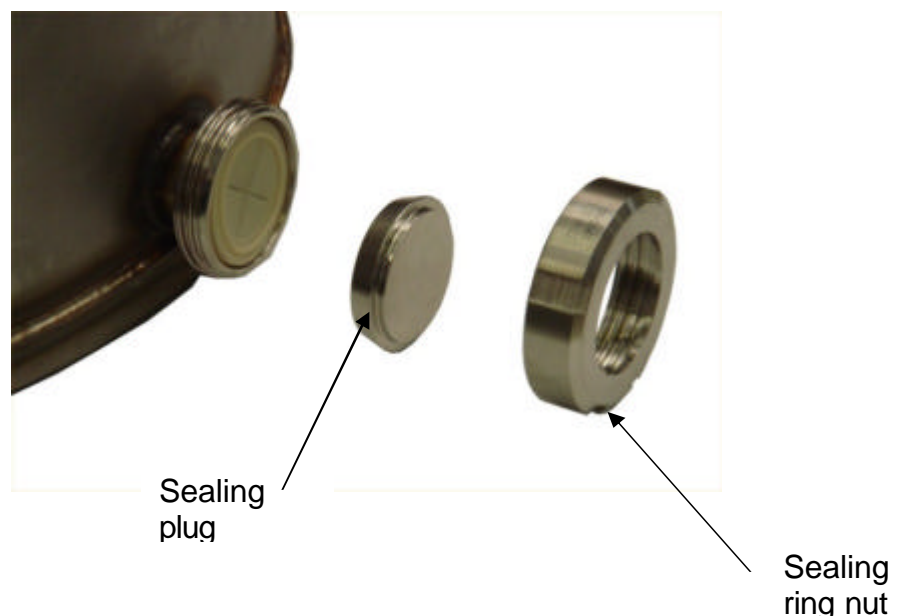


## Press out ink containers (cont)



To create an airtight seal and keep the piston pressure plate clean and free from ink, lay a sheet of polythene lining over the ink. On top of this place the sealing "O" ring. This creates a seal the seal to allow the ink to be pressed out through the ink dispense valve, and not to leak above the pressure plate. The profile of the underside of the pressure plate sits inside the centre of the "O" ring and force it outwards onto the side wall of the ink container. When the container is empty, and has been removed from the machine, pick out the "O" ring which can now be reused and discard the polythene lining.

### 4.1.1 Dispense outlet cap



### 4.1.2 Fitting the ink valve

The sealing cap should be removed when the container is placed on the support platform of the dispensing machine. To remove the dispense outlet cap, Undo the sealing nut with the “C” Spanner provided remove blanking plug, being careful not to allow ink to seep out.

With the cap removed, ensure gasket is in position, place the dispense valve on to the vessel outlet and secure with the ring nut, tighten with “C” Spanner.

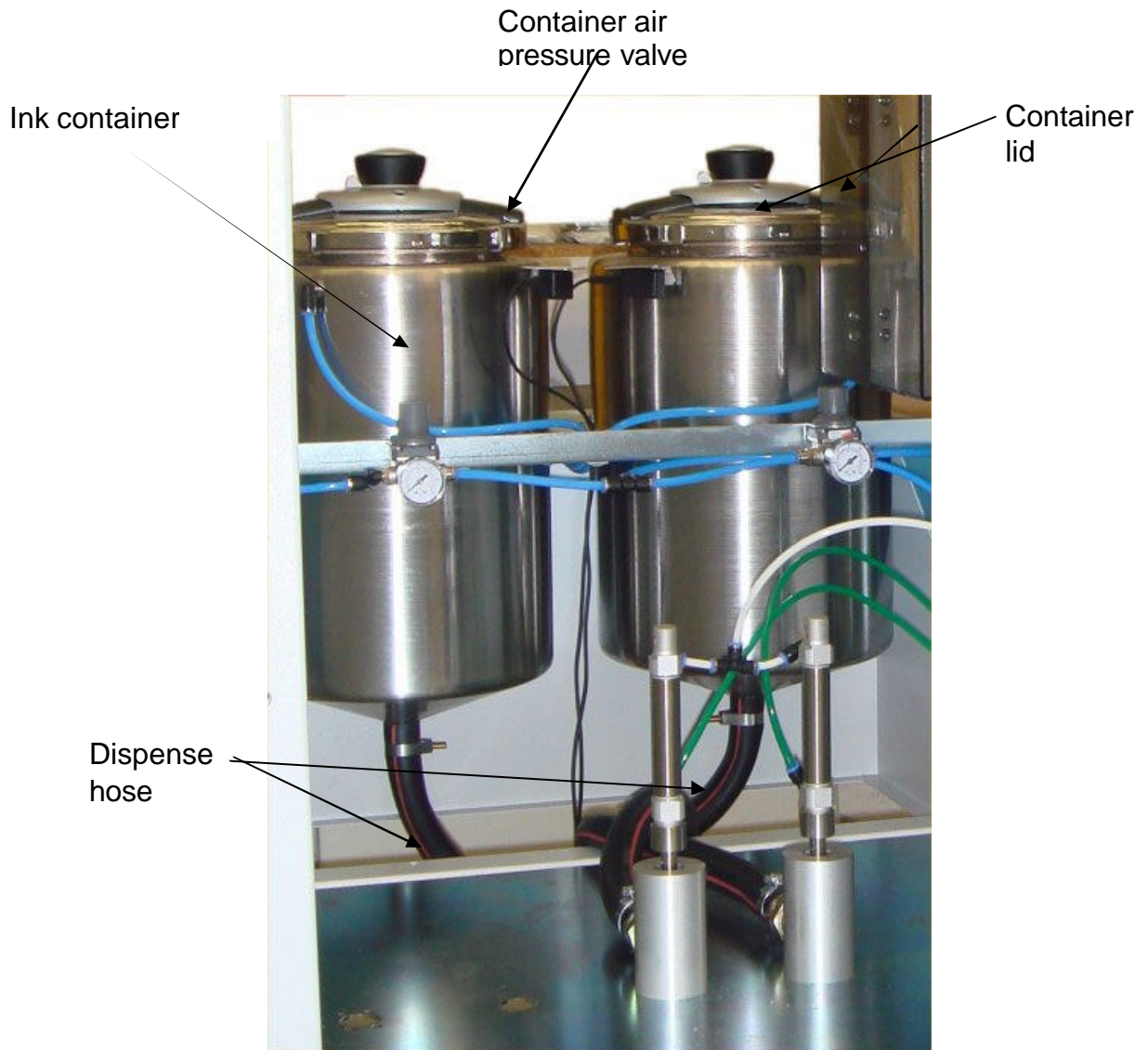
The air supply pipes to the actuators will not need to be removed to change over the dispense valve assembly.



Sealing  
ring nut

## 4.2 Low pressure containers

The low pressure ink container is used for low viscosity, high flowrate products. These vessels are located in a container frame alongside the press out dispenser, and hold a maximum of 25litres of product. The container is pressurised to 1bar and product is supplied to the ink dispense valve located within the press out dispenser by means of a flexible hose.



## Low pressure containers (cont)

Before loading ink for the first time it is advisable to clean out the empty containers with an alcohol/isopropanol solution, taking care not to move or damage the level sensor probes attached to the side of the container. Each ink container has been pressure tested using water prior to shipment and so any residual moisture should be fully removed before each container is filled with ink.



Figure x

### 4.2.1 Low pressure container lids

The supply container lid provides a pressure seal for the container via the gasket. To remove a lid, turn the blue air valve beside the container which is to be opened to the OFF position. This allows the container to fully vent (de-pressurise). When the hissing sound of escaping air ceases fully, press the button on the side of the centre handle of the lid to release the side clamps, allowing the lid to be lifted clear of the top of the ink supply container.



Ink Supply  
Container lid.

Ink Supply Container lid.  
Underside with gasket  
removed



## Low pressure container lids (cont)



Ink Supply Container lid.  
Underside with gasket  
fitted

To replace the lid, ensure the gasket is clean and securely seated in position. Place the lid on top of the ink container and press down the centre button to close the clamps. Switch the air valve to the ON position and as it pressurises, check for air leakage.

Press top  
button to  
close lid  
clamps.

Push side  
button to  
open lid  
clamps.

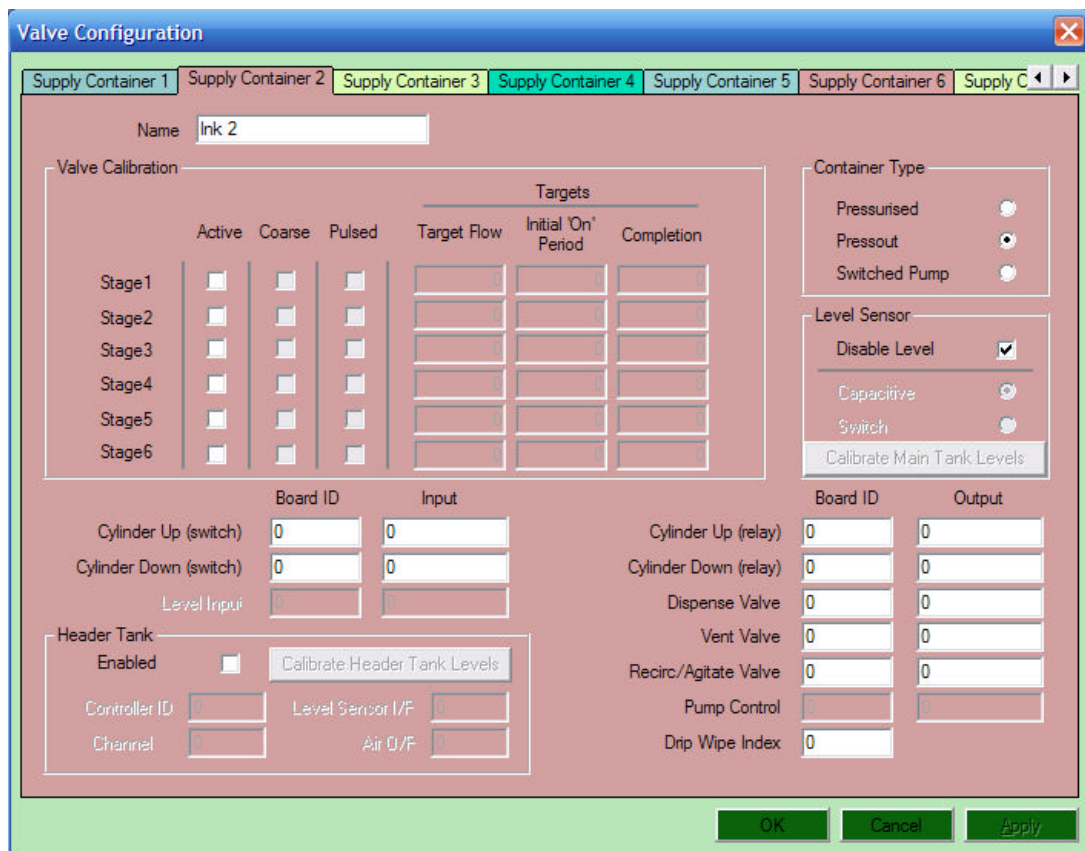


# 5 Configuration settings

## 5.1 Level Sensors

The settings will vary depending on which type of containers; press out, low pressure or drum dispensing, are being used for each of the products. Section 4 described the container types and their attributes. This section describes the methods for configuring Ink Manager software to the type of ink container being used.

To set the configuration information for each ink being used, select 'Options' 'Dispenser' 'Valve Configuration' from the drop down menu in Ink Manager. The following screen will appear.





## 5.1.1 Press out containers

On the first tab in the Valve Configuration screen, (figure x), enter the ink reference for the first product from the 'Setting Ink Names' list in section 3.1. For this example, the 'Container Type' has been set to 'Pressout', so tick the 'Disable Level' box.

The 'Board ID Input/Board ID Output' settings will have been preset at the factory and do not require adjustment.

The 'Valve Calibration' settings are described in Section 5.4

Do not tick the 'Header Tank' Enable box.

The press out containers do not display the level remaining, but are set to alert the machine operator when they become empty and require changing. If the machine has been configured with more than one container with the same colour, it will switch to the new full container once the empty point of the first has been reached.

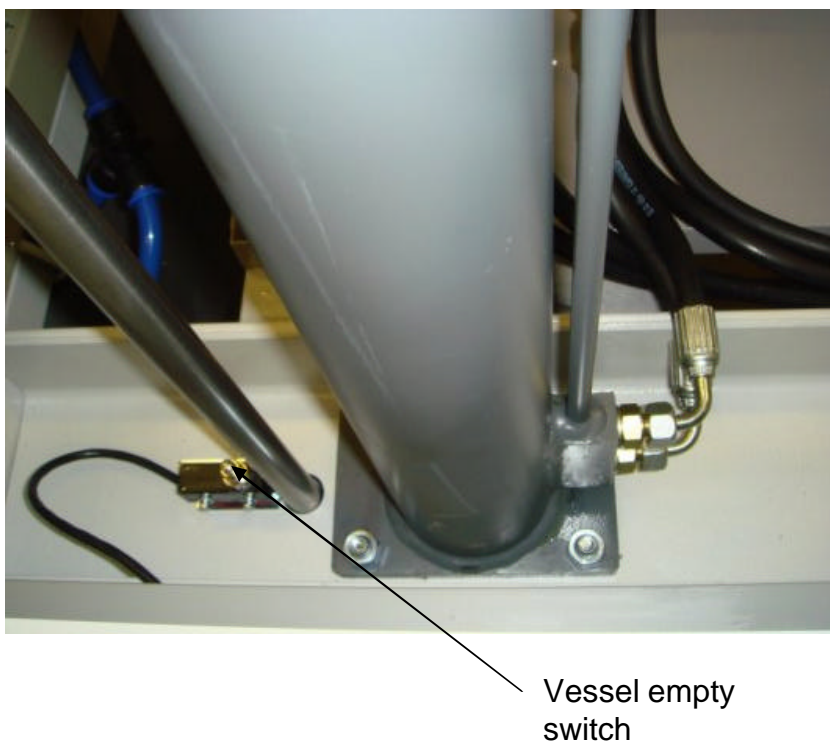
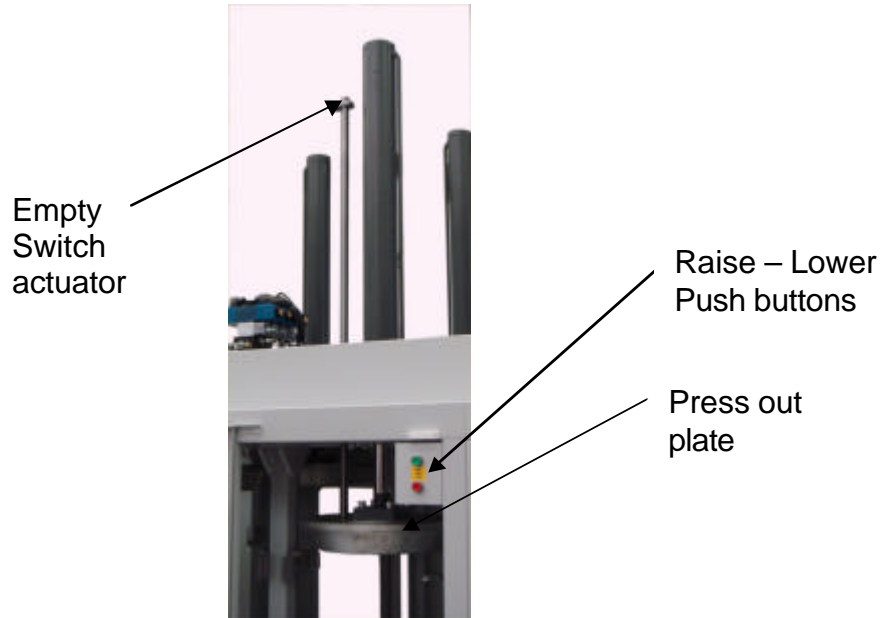
The low level indication is achieved by means of a pressure switch located in the top channel of the machine and is activated by an adjustable 'stop' block which is attached to the pressure plate by means of a support rod.

From the Ink Manager menu, select 'Options' 'Dispenser' 'Prime'. This allows the pressout pistons to be operated manually. The empty position is set by lowering the piston (with no container present) using the 'Lower' piston button mounted to the top right side of the station which is being set up.



## Pressout containers (cont)

Slacken the retaining bolt of the 'stop' block, and lower the piston. With the gap between the piston pressure plate and the container support surface at 5mm; slide the 'stop' block down onto the pressure switch plunger until it is felt to 'click'. Tighten the retaining bolt and check the pressure plate is stopping and leaving a 5mm gap using the 'Raise' and 'Lower' piston buttons.



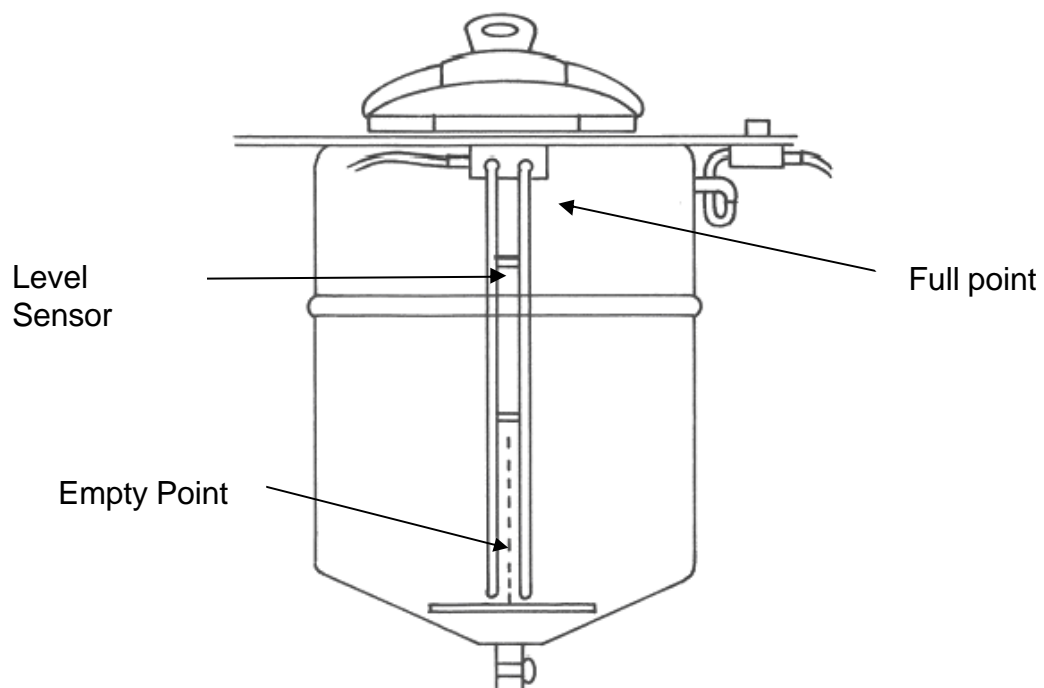


## 5.2 Setting ink levels – high/low pressure containers

Ink level sensing in the high and low pressure containers is achieved by monitoring the ink level using a probe mounted on the inside of each container. The probe comprises 2 insulated steel rods spaced 20mm apart. One side is electrically isolated from the container.

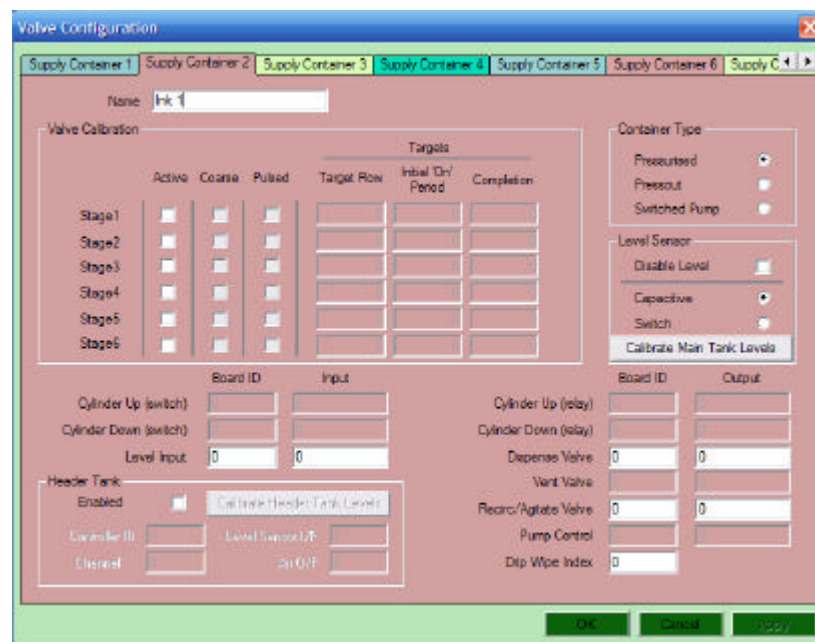
The probe is mounted vertically inside the container, with the end of the probe as close to the bottom of the container as possible. The way in which the low level value is set ensures that the 'container empty' point registers prior to the container actually becoming empty. This eliminates air being drawn through to the dispense valve, and ink spitting from the valve, which may happen if the container was to actually become completely empty. The high level value is set with the ink below the top of the level sensor probe; keeping the ink away from the lid and its sealing gasket, and well below the container air pressure inlet.

The diagram below shows of the ink level probe and ink level indication points within the ink container.



## Setting Ink Levels – high/low pressure containers (cont)

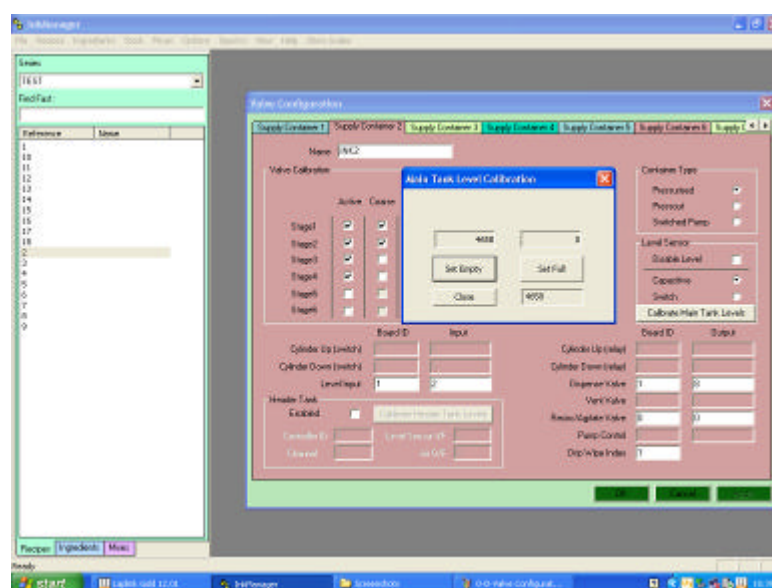
To begin setting the ink level, from the Ink Manager menu, select 'Options' 'Dispenser' 'Valve Configuration', and ensure the correct tab corresponding to the ink station is highlighted. Set the 'Container Type' to 'Pressurised' and highlight the 'Capacitive' button in the Level Sensor box.



From the 'Setting Ink Names' list in section 3.1, enter the relevant information into the 'Name' box.

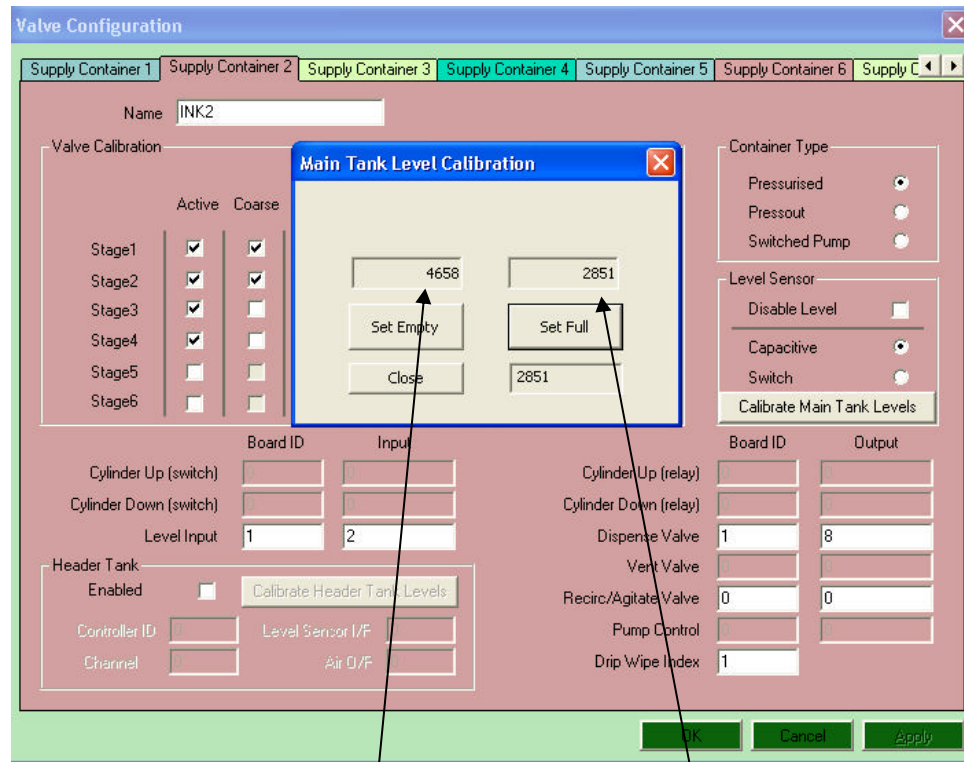
Click on the 'Calibrate Main tank Levels' in the Level sensor box. Pour in enough ink to cover approx 1inch, (25mm) above the bottom of the level sensor probe in the container.

Select 'Set Empty' button to set the empty level for this colour. The numerical value for this will be recorded in the box above 'Set Empty' button. This ensures that the container will show the empty point **BEFORE** the ink reaches the bottom, as previously explained.



## Setting Ink Levels – high/low pressure containers (cont)

Continue to fill the container to a maximum level of 1/2 Inch (12mm) below the bend at top of the probe. When this is done, click the 'Set Full' button. The numerical value for this will be recorded in the box above the 'Set Full' button. The value shown in the box for the full level should be smaller than the value of the empty point level.



Set Empty Indication

Set Full Indication

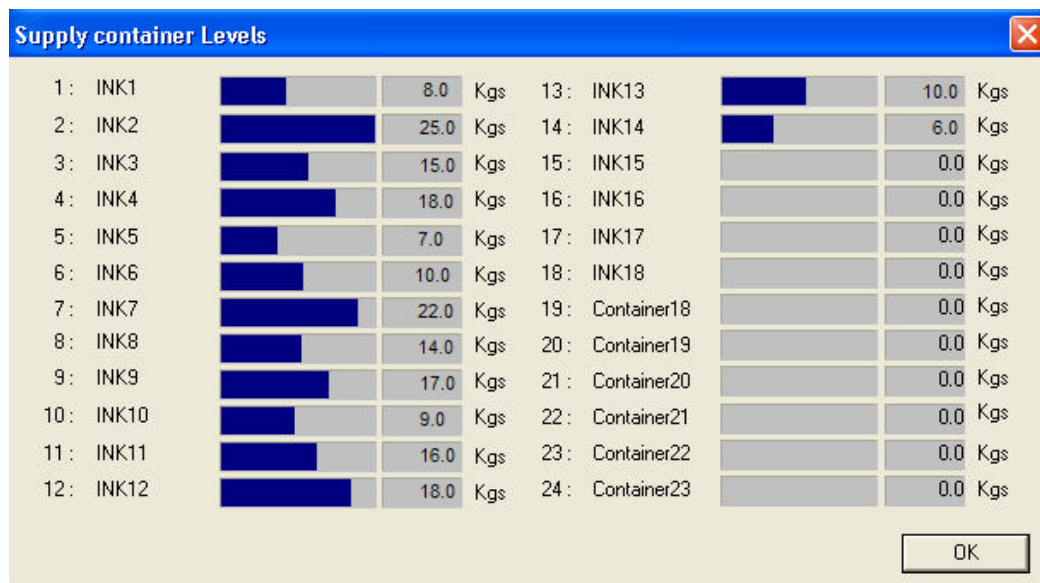
Note: The live value in the boxes 'Set Empty Indication' and 'Set Full Indication' will be recorded into the selected container number (into either the full or empty points depending on which button is 'clicked'). Therefore, it is important to go through the filling of the ink containers and the setting of the low and high level procedure in the correct sequence. If the 'Set Full' button is clicked before the container is filled, the value indicated will be stored as the full value. If the 'Set Empty' button is clicked when the ink container is full, the machine will not dispense even though the container is full. This is due to the software interpreting the signal sent from the Level Sensor Probe indicating that the container requires re-filling.

## Setting Ink Levels – high/low pressure containers (cont)

The 'Weight' field is optional. This will allow a check of approximately how much ink by weight is in a particular container at any time. To set this feature, select 'Options' 'Dispenser' 'Ink Level Configuration' and enter the quantity of ink by weight which was used to fill the container between the empty and full points into the weight box of the appropriate ink container.

	Current Level	Empty Point	Full Point	Weight	Disabled		Current Level	Empty Point	Full Point	Weight	Disabled
1:		0	0	0	<input checked="" type="checkbox"/>	13:		0	0	0	<input checked="" type="checkbox"/>
2:		0	0	0	<input checked="" type="checkbox"/>	14:		0	0	0	<input checked="" type="checkbox"/>
3:		0	0	0	<input checked="" type="checkbox"/>	15:		0	0	0	<input checked="" type="checkbox"/>
4:		0	0	0	<input checked="" type="checkbox"/>	16:		0	0	0	<input checked="" type="checkbox"/>
5:		0	0	0	<input checked="" type="checkbox"/>	17:		0	0	0	<input checked="" type="checkbox"/>
6:		0	0	0	<input checked="" type="checkbox"/>	18:		0	0	0	<input checked="" type="checkbox"/>
7:		0	0	0	<input checked="" type="checkbox"/>	19:		0	0	0	<input checked="" type="checkbox"/>
8:		0	0	0	<input checked="" type="checkbox"/>	20:		0	0	0	<input checked="" type="checkbox"/>
9:		0	0	0	<input checked="" type="checkbox"/>	21:		0	0	0	<input checked="" type="checkbox"/>
10:		0	0	0	<input checked="" type="checkbox"/>	22:		0	0	0	<input checked="" type="checkbox"/>
11:		0	0	0	<input checked="" type="checkbox"/>	23:		0	0	0	<input checked="" type="checkbox"/>
12:		0	0	0	<input checked="" type="checkbox"/>	24:		0	0	0	<input checked="" type="checkbox"/>

To view the levels of each of the inks within the supply containers, select 'Options', 'Dispenser', 'Ink Levels'.



### 5.3 Setting ink levels – press out drum dispenser

The press out drum dispenser does not have the facility to display the ink level remaining in the drum, but uses a mechanical switch to indicate the empty point when the follower plate reaches the bottom of the drum.

To set this feature, ensure there is no drum on the pressout stand below the follower plate. Slacken the retaining clamp bolt on the pressure switch, and lower the pressure plate by means of the 'lift switch'. Lower it until there is a 10mm gap between the lower face of the pressure plate and the drum base. At this point, adjust the pressure switch so it is in its activated state.

Raise the pressure plate using the 'lift switch' until it is at a height at which a drum can be loaded onto the drum base.

Load the drum onto the base using a suitable drum trolley, and secure the drum clamps.

**NEVER TRY TO MOVE FULL DRUMS OF PRODUCT WITHOUT USING THE CORRECT LIFTING EQUIPMENT.**

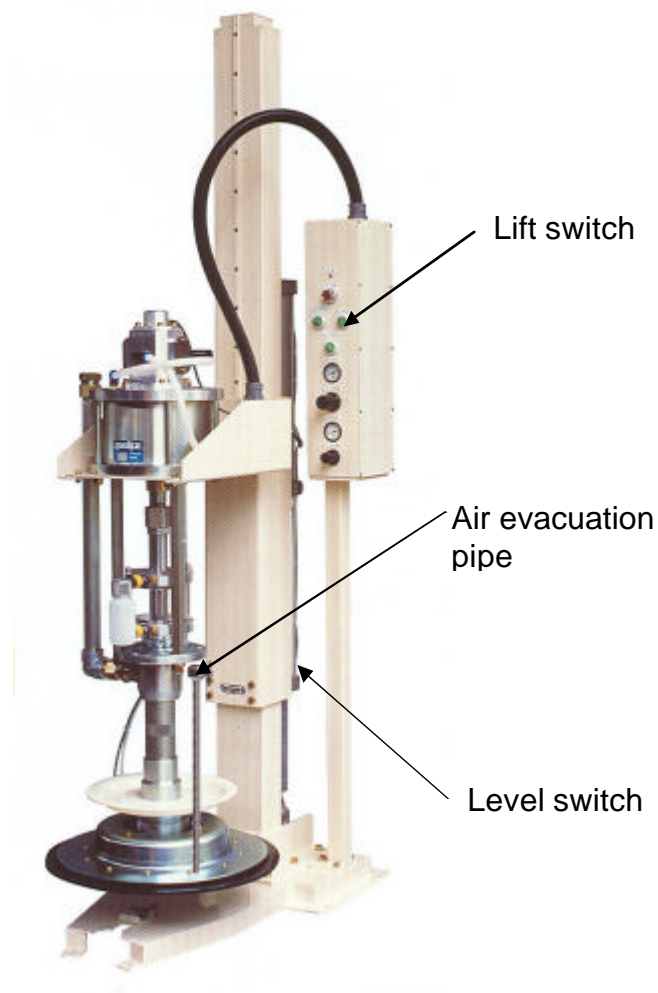
### 5.4 Priming – press out drum dispenser

To prime the system ready for use, have a drum of ink in place on the drum base.

Move the lever on the air evacuation pipe to the open position. This will allow trapped air between the lowering pressure plate and the ink to escape and avoid ink starvation to the pump due to an airlock.

Using the 'lift switch', lower the pressure plate slowly into the top of the open drum until it comes to a rest on top of the ink. As soon as this happens, shut off the air evacuation pipe to avoid ink blocking the outlet.

The system is now ready to operate.





## 5.5 Valve Configuration

Select 'Options' 'Dispenser' 'Valve Configuration' from the drop down menu in Ink Manager. Each container has its own 'Folder tab' and has been allocated the correct colour reference, and been denoted as either a 'Pressurised', 'Pressout' or a 'Switched Pump' container in the previous section of this manual.

Before starting to dispense ink, the flow rate for each ink valve needs to be set in order to provide swift but controlled dispensing. It is necessary to understand that the viscosity and flow attributes of the ink or additive will affect its actual dispense rate.

There is a facility to split the dispense process into stages, for ease of control. These are 'coarse' feed for the bulk of the dispense down to approximately 100g before completion, 'coarse pulsed' feed giving coarse feed control down to approximately 20g before completion, 'fine continuous' feed down to approximately 10g before completion and finally, 'fine pulsed' feed down to completion of the dispense. There can be up to 6 separate stages of dispense, although they do not all have to be used. For the purpose of this example, 200g of ink is to be dispensed, utilising only 4 of the stages.

Name field Folder tabs

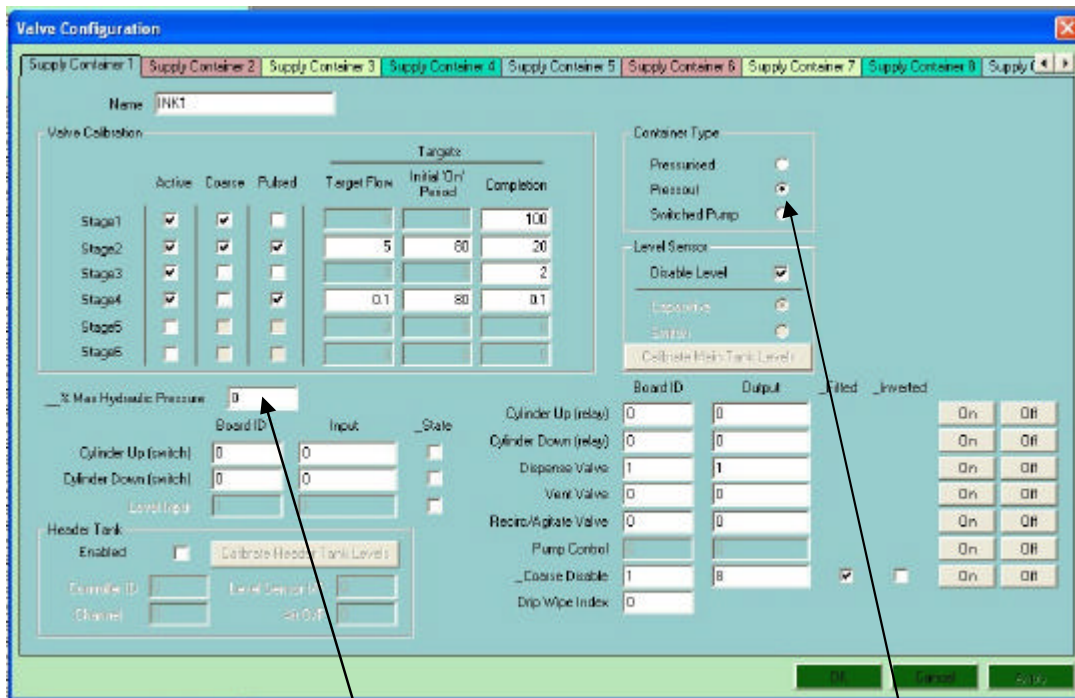
	Active	Coarse	Pulsed	Targets		
				Target Flow	Initial 'On' Period	Completion
Stage1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			100
Stage2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	100	20
Stage3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			10
Stage4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.3	60	0.1
Stage5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Stage6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			

The required speed of dispense when the valve is pulsing, in gms/second.

The length of time (measured in milliseconds) that the valve is open when it begins to pulse.

The weight remaining to be dispensed at which this stage ends.

## 5.5.1 Pressout Pressure Configuration



Percentage hydraulic Pressure

Pressout

Main hydraulic pressure is factory set and should not be adjusted, this screen enables each colour to have a proportion of that pressure delivered to the pressout cylinder. With the fine feed valve open increase the %age value to achieve a steady continuous flow of ink.

Close the fine feed valve and open the coarse feed valve a smooth continuous flow of ink should be seen, fine adjustment of the %age value will provide steady ink delivery from each valve. Each pressout station can be set individually to suite the type of ink, Cut off values should be adjusted as previously described.

## 5.6 How does the Ink Valve function during a dispense?

The ink valve is controlled by the Ink Manager Software to open allowing the flow of ink through the large outlet (coarse feed) and small outlet (fine feed). Both coarse and fine feeds can be set to complete the end of their dispense operations by pulsing the flow to reach the desired quantity.

The feed profiles are activated by setting parameters in the Ink Manager software, (Figure x), causing the valve to achieve it's pre-determined operation.

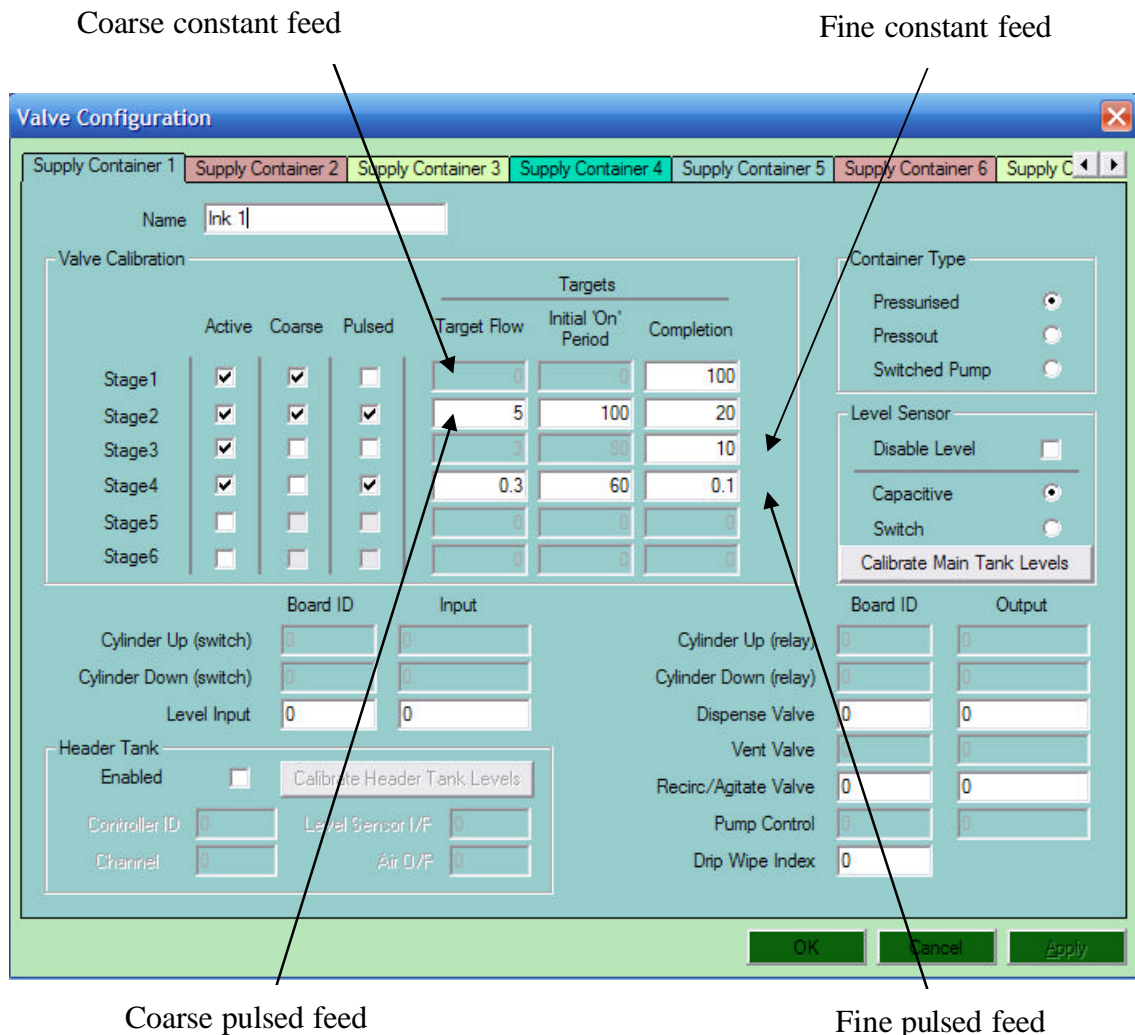


Figure x

By ticking:

**'Active'** – this opens a dispense stage. If the 'Coarse' or 'Pulsed' options are not selected, the ink valve will only dispense from the fine feed outlet.

**'Active' 'Coarse'** – this opens the valve to dispense to the 'Completion' preset value of that stage from the coarse feed outlet.

**'Active' 'Coarse' 'Pulsed'** – this 'Pulses' the coarse feed to the 'Completion' preset value of that stage at the preset 'Target Flow' rate.

**'Active' and 'Pulsed'** – this 'Pulses' the fine feed to the 'Completion' preset value of that stage at the preset 'Target Flow' rate.



## How does the Ink Valve function during a dispense? (cont)

The dispense example, uses 4 stages to complete the process; the break down of each dispense stage is as follows and for the example, the dispense ink quantity is 200g:

### **Stage 1.**

Is Active (or enabled)

Coarse feed valve continuous dispense

From 200g down to the Completion Weight of 100g

(Total of 100g of ink dispensed into the supply container)

### **Stage 2.**

Is Active (or enabled)

Coarse feed valve will pulse (open for 100 milliseconds before closing) and dispense at a target flow rate of 5grams/second The target flow rate should be adjusted in increments of 10 if the target rate is difficult to achieve; if the dispense time is taking too long for example.

Now down to the new Completion Weight of 20g

(Total of 180g of Ink dispensed into the container)

### **Stage 3.**

Is Active (or enabled)

Fine feed valve continuous dispense

Now down to the new Completion Weight of 10g

(Total of 190g of Ink dispensed into the container)

### **Stage 4.**

Is Active (or enabled)

Fine feed valve will pulse (open for 60 milliseconds before closing) and dispense at a target flow rate of 0.3grams/second

Now down to the new Completion Rate of 0.3g (This allows for the ink tail which may form at the outlet of the dispensing valve to be included. For thicker inks this can be increased and for thin inks this can be zero, 0g)

(Total of 200g of Ink dispensed into the container)

**WARNING: IF STAGE 1 IS DISABLED THEN THE MACHINE WILL NOT DISPENSE ANY OTHER STAGES!**

## 5.6 What happens if the same ink is used in more than one of the ink supply containers?

The press out dispenser is designed to allow the operator to fill more than one of the supply containers with the same ink. This is more commonly used for colours that are most frequently consumed.

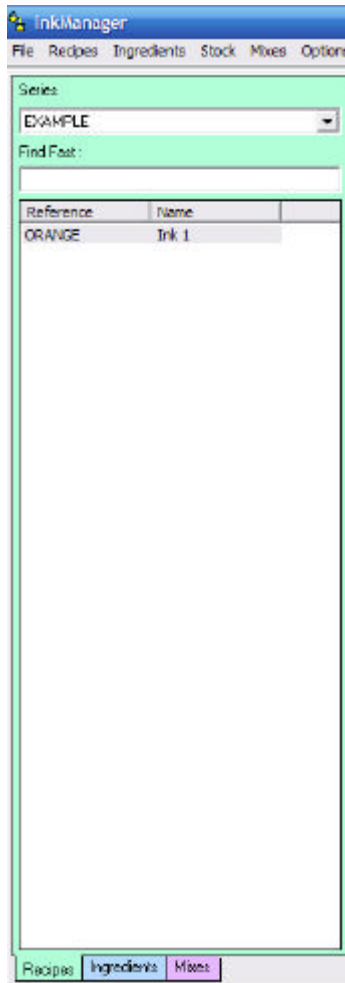
In this case the same ink reference has to be given to both of the Folder Tabs when setting the Flow Rates.

(See section '*Valve Configuration*').

The press out dispenser will dispense from the one of the containers until the empty point is reached, if this was to happen in the middle of a dispense sequence, the machine will automatically divert to the second ink container and continue to complete the mix. A warning message in Ink Manager will inform the operator that the first container is empty; it will now continue to use the second container until it is empty. When the second container reaches the empty level, the dispensing will automatically switch back to the first container. (By this time the first container requires re-filling). (See Section '*Loading Ink*').

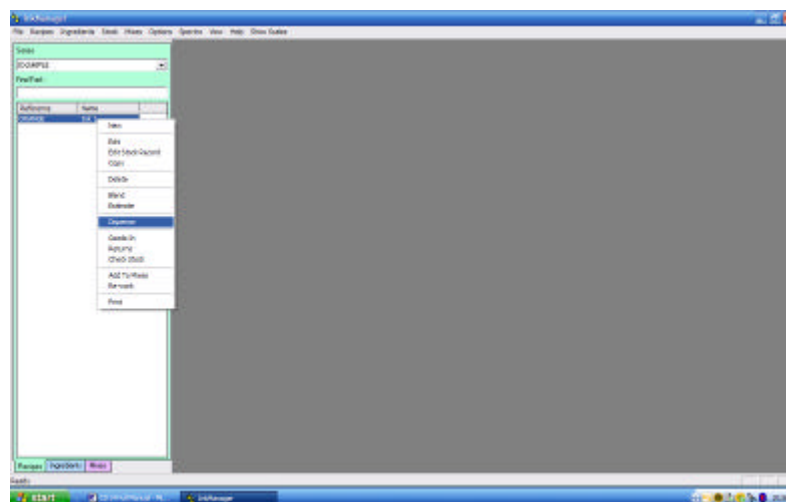
## 5.7 Dispensing ink

For instruction on entering recipes, see Ink Manager Training section.



Select the 'Ink Series' to be used from the drop down menu and select the recipes tab at the bottom left of the screen.

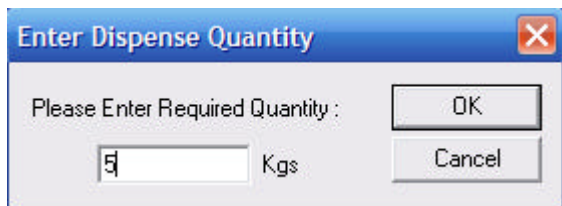
In the recipes window, locate and select the recipe to be dispensed, place the cursor over, and highlight it using the right mouse button.



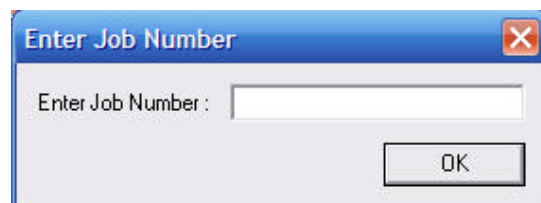
From the drop down list, highlight 'dispense' and select it using the left mouse button.

## Dispensing ink (cont)

Enter the dispense quantity and click 'ok'.



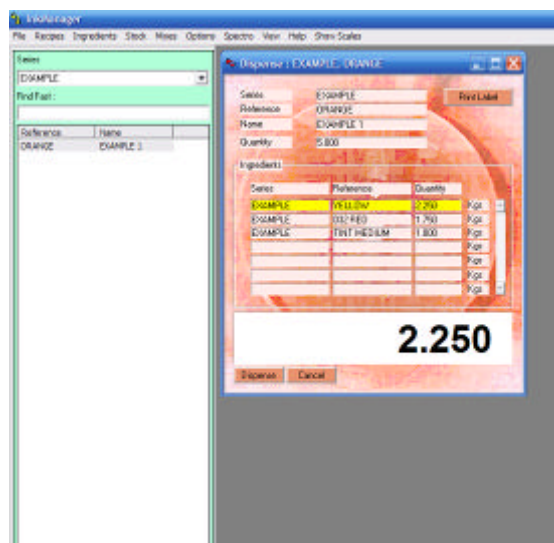
The dialog box has a blue title bar with the text "Enter Dispense Quantity" and a close button. The main area contains the text "Please Enter Required Quantity :", a text input field with the number "5" inside, followed by "Kgs", and two buttons: "OK" and "Cancel".



The dialog box has a blue title bar with the text "Enter Job Number" and a close button. The main area contains the text "Enter Job Number :", an empty text input field, and an "OK" button.

Enter the 'job number' if required and click 'ok'. If the ink is not to be allocated to a job, click 'ok'.

The dispense screen shows details of the ink formulation to be dispensed. Select 'dispense' and the machine operation will commence.



The main software window is titled "INKM-Layer" and has a menu bar with "File", "Recipes", "Ingredients", "Stock", "Mixes", "Options", "Spectro", "View", "Help", and "Show Scales". On the left, there is a "Items" list with "EXAMPLE" selected. Below it is a "Find Part:" field and a table with columns "Reference" and "Name", containing one row: "ORANGE" and "EXAMPLE 1". The main area is dominated by a "Dispense : EXAMPLE, ORANGE" dialog box. This dialog has fields for "Serial" (EXAMPLE), "Reference" (ORANGE), "Name" (EXAMPLE 1), and "Quantity" (5.000). Below these is an "Ingredients:" table:

Serial	Reference	Quantity	Unit
EXAMPLE	INK1001	2.250	Kgs
EXAMPLE	INK1002	1.750	Kgs
EXAMPLE	INK1003	1.000	Kgs
			Kgs
			Kgs
			Kgs
			Kgs

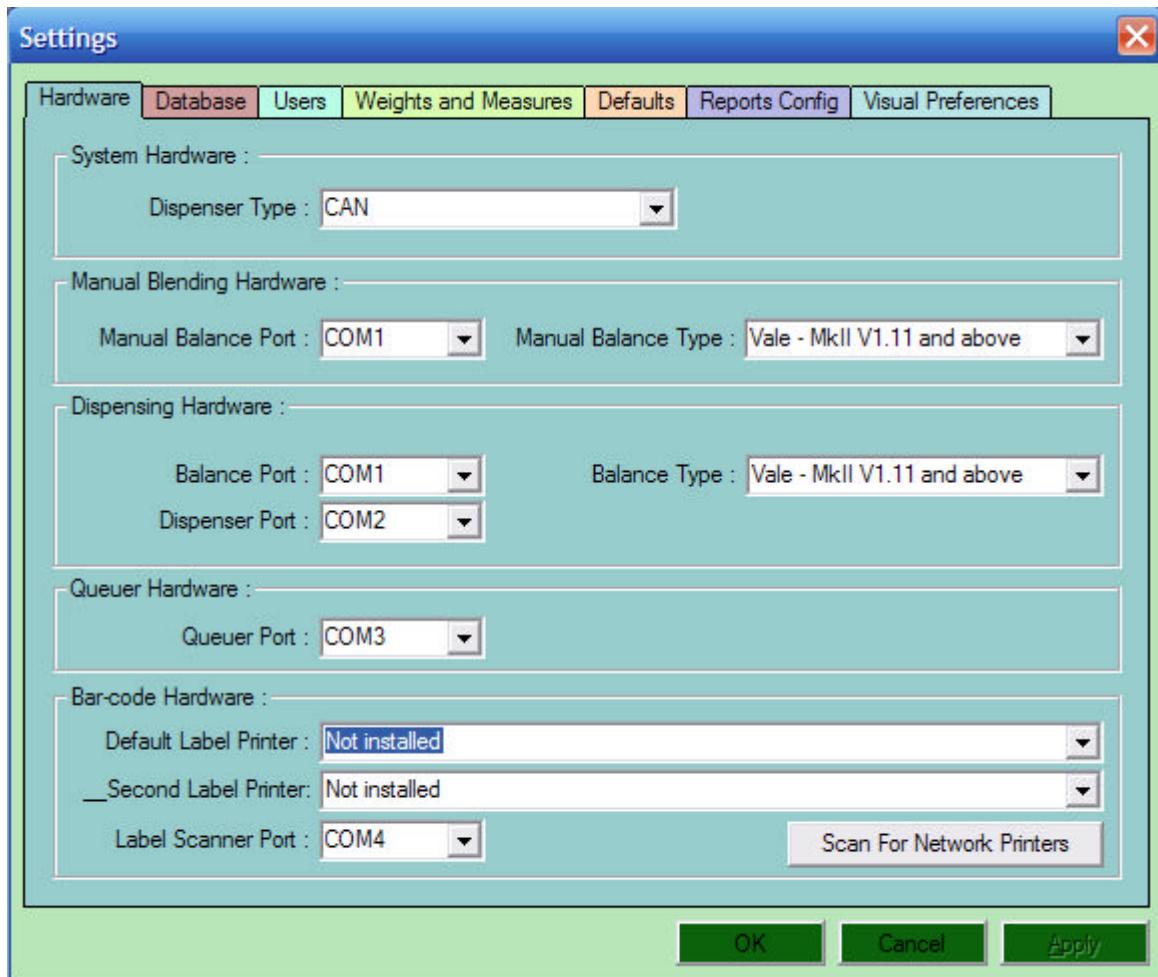
At the bottom of the dialog, a large digital display shows "2.250". There are "Dispense" and "Cancel" buttons at the very bottom.

As each component part of the formulation is dispensed, the software will control the ink valve as described in 3.6. When the dispense is complete, the dispense screen will clear\* and the container of blended ink can be removed from the scale unit.

\*If the software has been configured to allocate the ink to stock, a box will appear and the allocation can be confirmed.

## 6 Hardware Settings

Ink Manager requires setting up to work with a particular machine and its requirements. From the drop down menu select 'Options', 'Settings', General and the following screen will appear. To configure the various fields, refer to the Hardware Set Up in the Ink Manager Training Section.



The screenshot shows the 'Settings' dialog box with the 'Hardware' tab selected. The dialog has a title bar with a close button (X) and a menu bar with options: Hardware, Database, Users, Weights and Measures, Defaults, Reports Config, and Visual Preferences. The main area is divided into several sections, each with a title and a set of controls:

- System Hardware :** Dispenser Type : CAN
- Manual Blending Hardware :** Manual Balance Port : COM1, Manual Balance Type : Vale - MkII V1.11 and above
- Dispensing Hardware :** Balance Port : COM1, Dispenser Port : COM2, Balance Type : Vale - MkII V1.11 and above
- Queuer Hardware :** Queuer Port : COM3
- Bar-code Hardware :** Default Label Printer : Not installed, Second Label Printer : Not installed, Label Scanner Port : COM4, and a 'Scan For Network Printers' button.

At the bottom of the dialog are three buttons: OK, Cancel, and Apply.

To configure the ports which the various items of hardware are connected into and which type of balance is being used, please refer to the Hardware Configuration information in the Service section of this manual for settings.

Note: Hardware settings should only be changed by authorised personnel/ engineers.

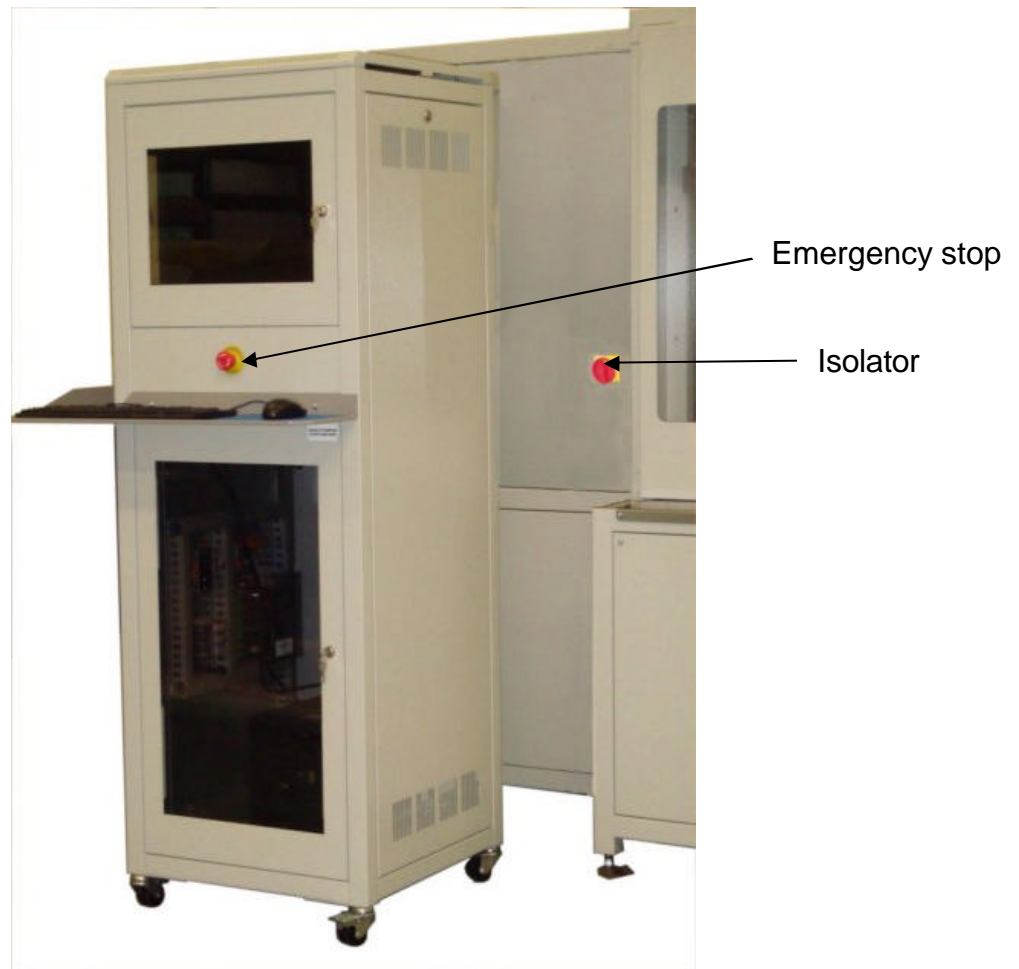
## 7 Safety Features

The Press Out Dispenser machine incorporates safety features which work to prevent any potential injury or harm to the user or to the machine. The safety features must not be tampered with.

When handling ink and lacquer products for use in conjunction with the machine, suitable protective equipment must be used. Use latex (or similar) gloves, eye protection, suitable safety shoes and overalls to protect from splashes and spills.

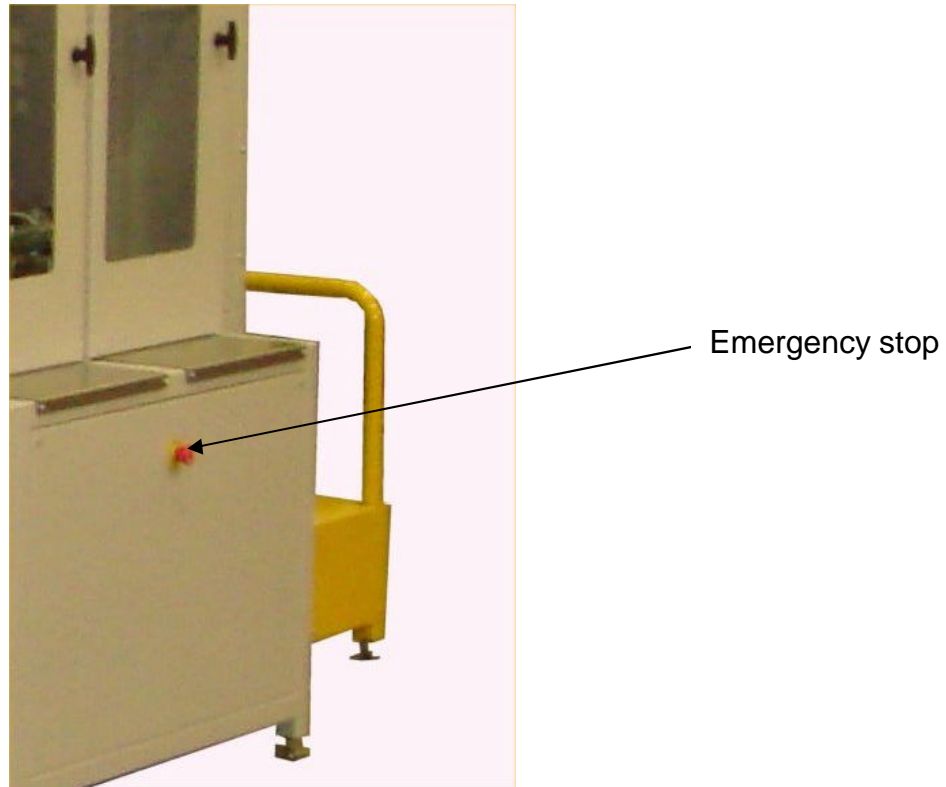
### 7.1 Isolator Switch

The main power isolator switch is located on the right panel of the machine. When maintenance is being carried out, the power must be isolated and the switch locked with a padlock.



## 7.2 Emergency Stop Switch

Pressing the red button labelled 'Emergency Stop' located on the control cabinet of the machine and above the container access doors will activate the emergency stop circuit within the electronics of the machine. The machine will require resetting as detailed in Section 2.2 before any operations can be carried out, and to stop the alarm sounding.



If the Emergency Stop button is depressed during a dispense operation, this will be aborted.

To release the Emergency Stop, the button must be turned anti-clockwise ensuring that it is not depressed further, preventing the button from releasing.

## 7.3 Door switches

Each of the access doors of the machine has a safety system which requires the door to be closed before a dispense operation can be started. If the door is opened as a dispense is about to start or while the machine is in operation, it will stop. The operation will resume once the door is closed.

The press out dispenser features magnetic interlocks on all of the ink container access doors. These are located at the top right side of each door. If the door is open, the hydraulic press out cylinders will not be operable

Magnetic interlock to disable hydraulic cylinder if door opened



Warning notice

## 7.4. Alarm Sounder

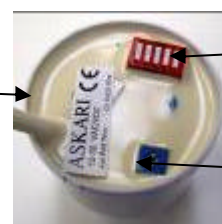
The sounder is an alarm which alerts the user to any problems that occur with the machine. (It is located to the left of the Airbox assembly). The alarm volume and tone can be adjusted via settings within the sounder.

For volume adjustment, a screw can be found on the underside, and by turning this either way the volume can be decreased or increased accordingly. For tone adjustment, a series of switches which can be placed in various position combinations alter the tone. Note: It is important that before any adjustment is made, the user is reminded that the sounder is a safety feature that must be audible above the ambient noise of the workplace.

Sounder top



Sounder underside



Tone adjustment



## 8 Balance and carriage assembly

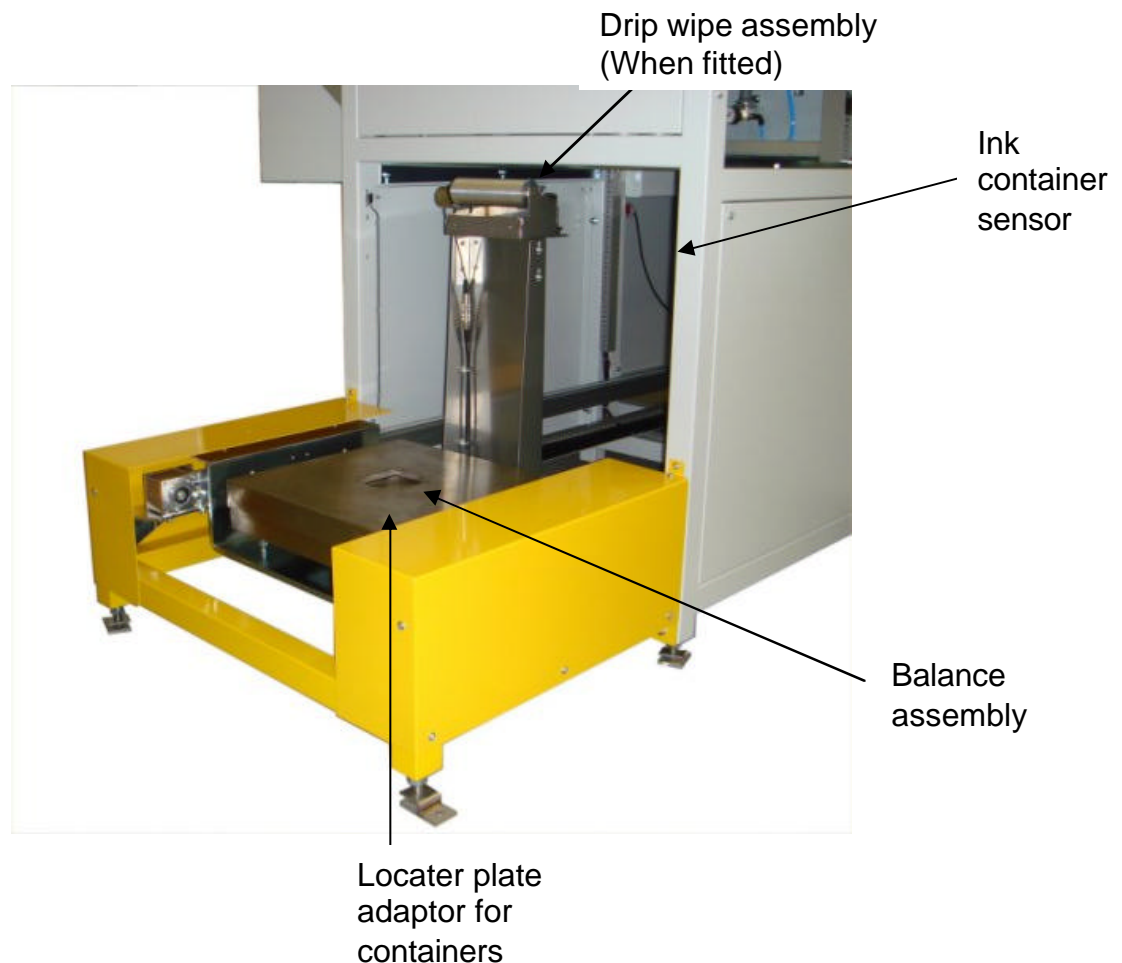
Balance assembly is used to indicate by means of Ink Manager software, the weight of ink as a recipe is dispensed, and can be used as a manual scale if required by selecting 'Show Scales' in the Ink Manager menu bar.

Place the correct locator plate on the balance for the ink container to be used. The locator plate is required to ensure the container is positioned in the centre of the balance and secured firmly before the dispense process begins. The balance and the locator plates are manufactured to suit customer specific container dimensions and weight requirements. The locator assemblies are 'keyed' to only fit firmly in one position. Ensure the locator plate is the correct size for the blend container to be used. Adjustments can be made by re-positioning the pins in the drilled slots in the upper locator plate. All three must be positioned to keep the container central to the locator plate.

**WARNING: DO NOT USE THE DISPENSER WITHOUT THE CORRECT SIZE LOCATOR PLATE FOR THE CONTAINER**

Contact your supplier, or Vale-Tech Ltd direct, if you do not have the correct size locator plate for the machine.

Position the container to be used onto the locator plate.



## 8.1 Overweigh Protection

A photoelectric sensor is mounted in a position to scan across and through the locator plate and detect the following:

- That a container is present.
- The size of the container.

Batch size limits can be programmed into Ink Manager. This ensures a batch cannot be dispensed if it is of greater size than the capacity of the container which has been detected on the balance.

Note. The Pressout Dispenser will not perform a dispense operation if no container is detected on the locator plate

If the Pressout Dispenser is required to dispense a quantity greater than the capacity of the container on the locator plate, a warning will be shown on the screen giving the operator the following choice:

- a) Please reduce the batch size.
- b) Please increase the container size.

## 8.2 Scale Calibration

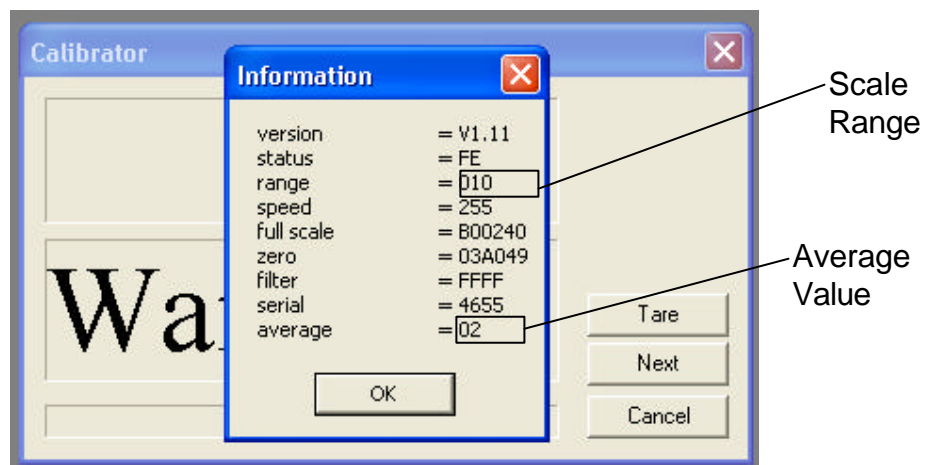
For the purpose of this example of the procedure, a 10kg scale is to be calibrated using 9kg of test weights. All Vale-Tech scale systems calibrate at zero and then 90% of the full scale capacity. For larger capacities using this principle, a 30kg scale calibrates at zero and then 27kg, and an 80kg scale calibrates at zero and then 72Kg.

Always check the scale accuracy by selecting 'Show Scales' from the drop down menu in Ink Manager, and checking accuracy with a known weight, before running the 'Scale Calibration' option. Always allow the scale to stabilise for 30mins before checking the calibration.

Select 'Show Scales' and allow the scale to tare. If a small amount of fluctuation is seen, this can be reset by clicking on 'Tare Scales' If the scale value continues to climb or fall, check for touch down of the scale and start again. If there is no touch down and the scale will not stabilise, contact Vale Tech for further advice.

Place known weights on to the scale weigh pan, (conformance weights supplied with the machine), and verify the scale is within the allowed tolerance. If it is, calibration is not required. If it is not, follow the calibration procedure.

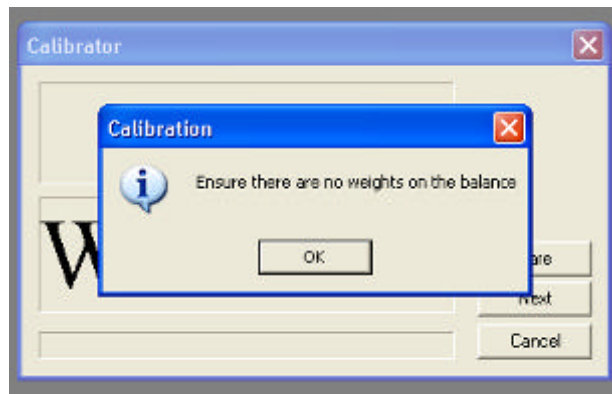
If it is determined that the scale requires re-calibration, log on to Ink Manger and ensure the scale calibration privileges are available by selecting 'Options' Scale Calibration from the drop down menu. If this option is not available, see your system manager log in details. The following screen will be displayed:



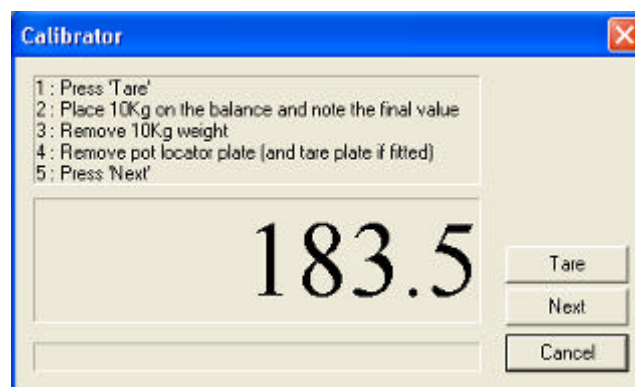
This is the basic scale programming information stored on the scale board that Vale-Tech Service may ask for if there are problems calibrating the scale. Check the scale 'range' is correct. The example above shows a 10Kg range Scale Board. The 'average' setting should be 02 on all scales.

## Scale Calibration (cont)

Click OK and the following screen is displayed:



Click OK and the following screen is displayed:



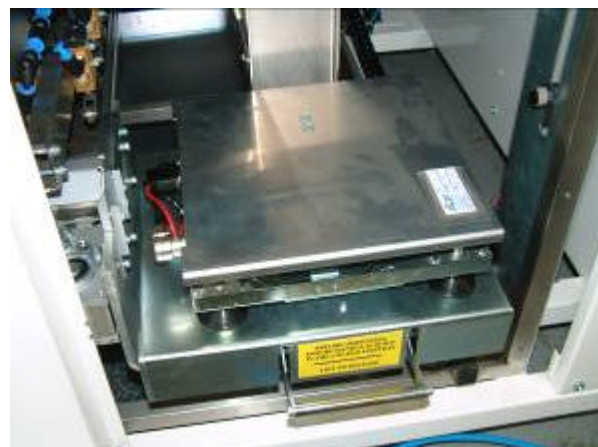
Above is the 'Calibrator' screen showing current weight and instructions on creating pre-calibration figures which will be required for the purpose of completing a calibration certificate. If it has been established that the scale is not out of calibration, then recalibration is not required, and cancellation of the procedure can be achieved at this point. If calibration is required, clicking on 'Next' will start the calibration procedure which is irreversible.

Ensure the required conformance or calibration weights are available, along with the 'Light Weigh Pan' as shown.

## Scale Calibration (cont)



If the calibration is to take place now, before clicking on 'Next', remove the Universal Container Locator, the 5kg Container Locator and the Weigh Pan as shown.

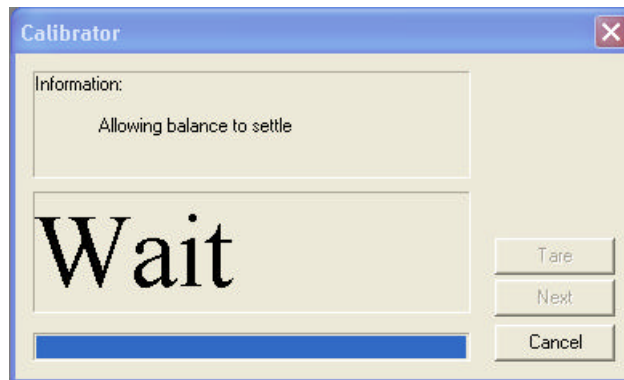


Place the Light Weigh Pan squarely on the Internal Weigh Pan with the balance locked in the home position as shown.

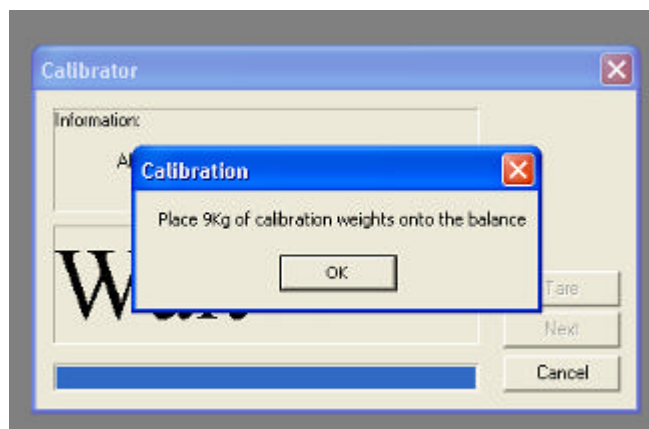
## Scale Calibration (cont)



Click 'Next' and the calibration procedure begins. The procedure allows the scale to settle before the reading is taken. Avoid vibrations, draughts and touching the scale during this time. The blue progress bar indicates the stage of the procedure.

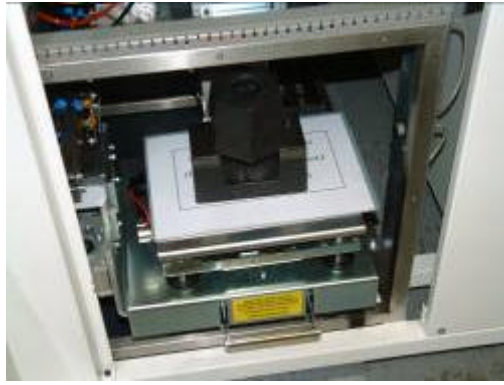


When the scale has finished recording the Zero value, the following screen is displayed:

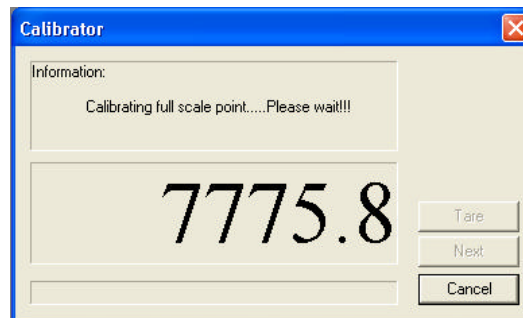


## Scale Calibration (cont)

Place 9kg of conformance or calibration weights centrally on the scale with the balance locked in the home position as shown.



Click OK. The scale will then allow time for the readings to settle, before values are displayed, and counting up to the calibration weight value. This will overshoot up to three times reducing less each time as the calibration point is reached.



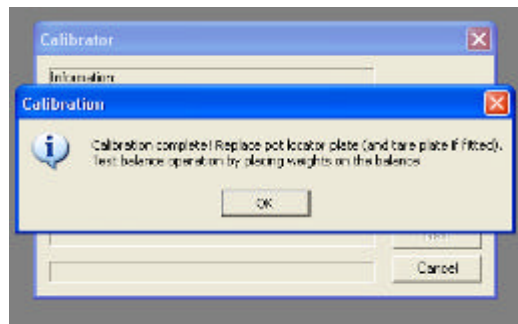
The final value, in this example 9kg, will be displayed as the value is stored. During this stage it is again important that the scale is not exposed to vibrations, draughts, or being touched.



After the full scale point is stored, the following message will be displayed.



## Scale Calibration (cont)



Click OK to return to the calibration window. The final weight will be displayed.



The scale calibration can be tested using this window. To do this remove all the weights from the scale, replace the weigh pan and 5kg Container Locator then click on Tare.



Place the calibration weights on the scale in 1kg increments and record the value displayed at each point, again with the balance locked in the home position as shown:



## Scale Calibration (cont)

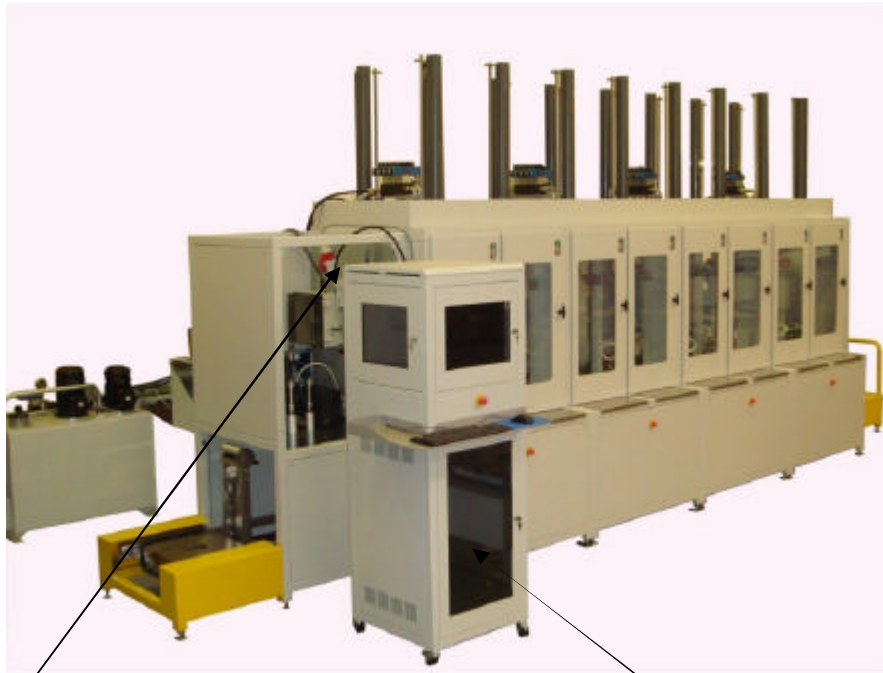


If the scale is within specification at each of the calibration points, click 'Done'. Calibration is complete.

If calibrator screen indicates the weight incorrectly, click 'Done' to close the current window and repeat the calibration procedure.

If repeating the procedure does not achieve the desired results, please contact Vale-Tech Technical Support.

# 9 Services cabinets



Services Cabinet



Control Console

PC

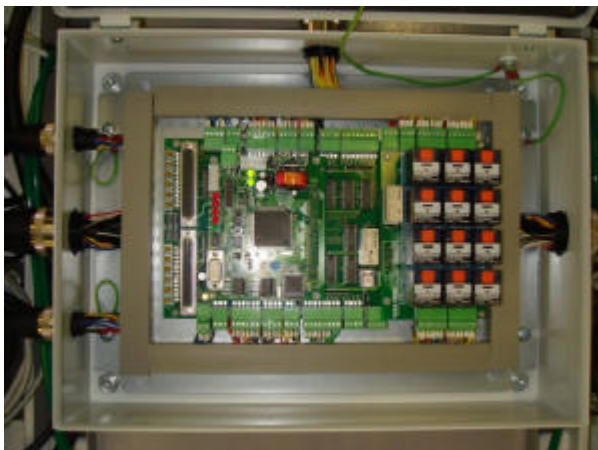


CAN controller 1

## Services cabinets (cont)



CAN  
controller 6



Control Cabinet 2  
On top of press  
out

CAN Controller2

## 10 Dispenser mechanical operation during the dispense process

When the machine is required to perform a dispense operation, the following happens.

A container of the appropriate volume is placed on the container locator device on the scale unit, and its presence is detected by the ink container sensor(s) located at the side frame of the carriage assembly.

The recipe to be dispensed is selected in Ink Manager, and the 'Dispense' tab is selected to start the operation. (Section 5.7).

The stepper motor and belt drive attached to the carriage, incorporating the scale assembly and the container, moves from the 'home' position until it reaches the point below the first ink dispense valve from which the first colour will be dispensed. The stop position is preset in the Ink Manager hardware configuration. The roller switch actuator on the side of the carriage will activate the pneumatic roller switch, enabling the air supply to the ink valve actuators in the valve from which the ink is to be dispensed. (Figure x)

The ink valve will operate to the parameters set in 'Valve Configuration', (section 5.4), and dispense the required quantity of ink.

The carriage will move off from its position to allow the drip wipe motor to remove any trailing 'strings' of ink from the underside of the dispense valve. The carriage will move to the next ingredient to be dispensed and the process, as above, will be repeated.

This will continue until all of the component parts of the recipe have been dispensed. When the dispense operation is complete, the carriage will move towards the 'home' position, and stop when the proximity switch on the side frame is activated.

The container can be removed.

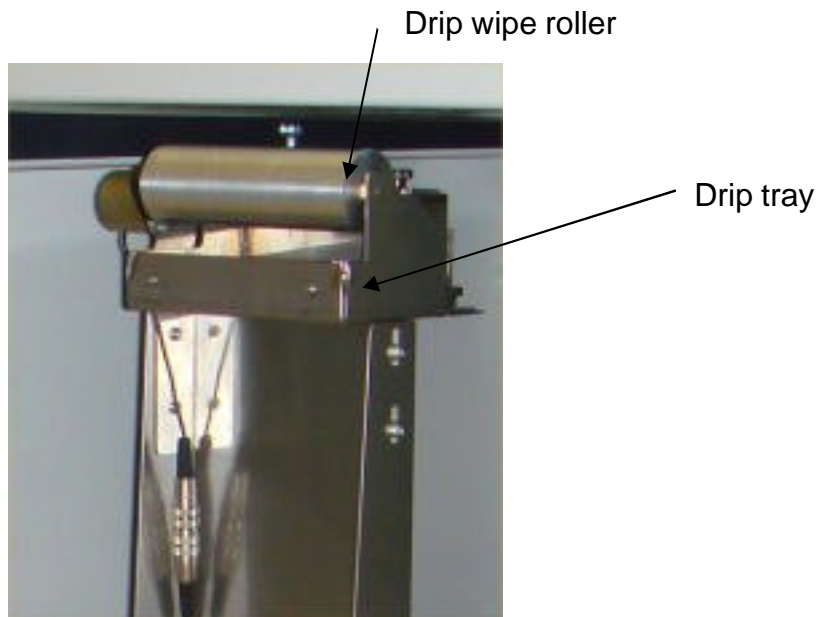
# 11 Cleaning & Maintenance

## 11.1 Drip wipe assembly (When fitted)

To keep the Pressout Dispenser in good working order, any spills and residual ink on any part of the machine must be removed immediately.

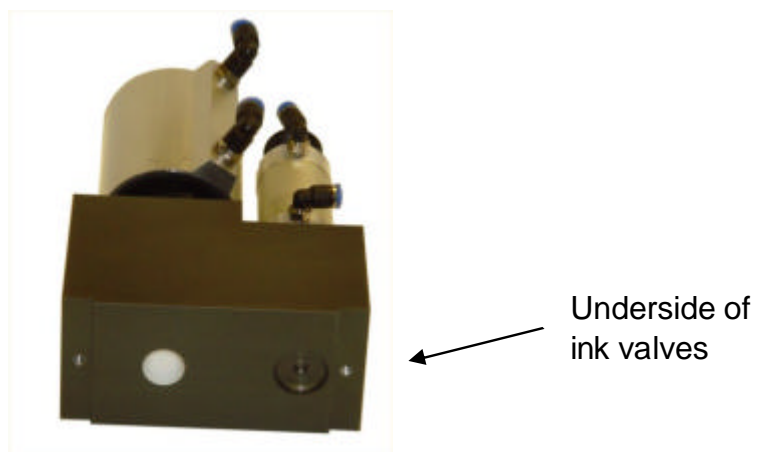
The drip wipe assembly will remove ink 'tails' from the valves following a dispense operation. The drip tray will require emptying at regular intervals, dependant upon machine usage. With the scale unit in the 'home' position, slide out the drip tray and remove any ink contained within it. The roller can be lifted out of its cradle and ink removed from it with a general wash chemical suitable for the ink type being used.

Drip wipe assembly  
(When fitted)



## 11.2 Ink valves

The ink valves may have traces of ink on their lower faces, and these will require cleaning, again with suitable general wash chemical. These can be cleaned when an ink container is removed for replacement, or the container may be slid out of the machine from its operating position, inclined backward slightly and the underside of the valve wiped over.





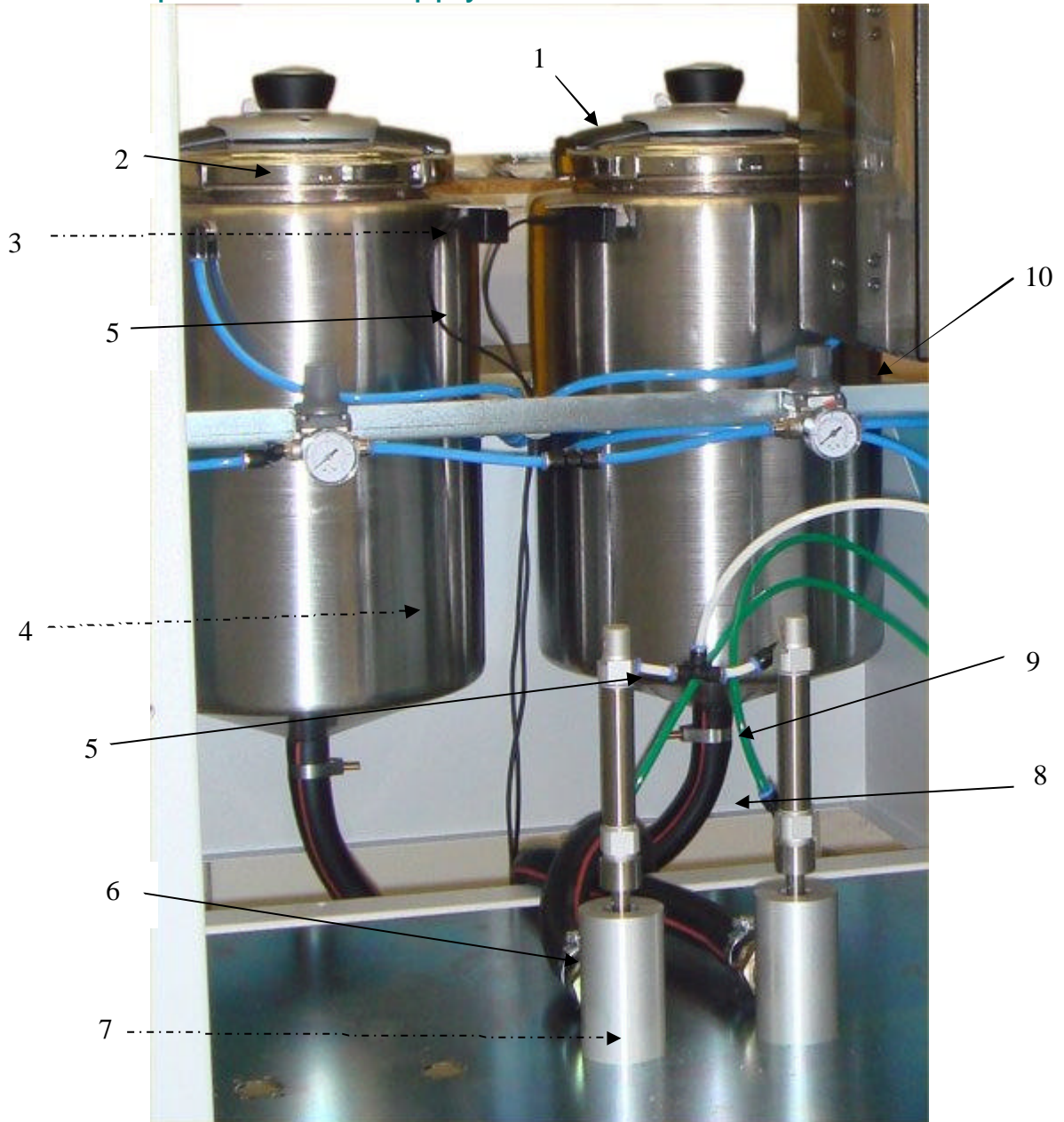
## Cleaning and maintenance (cont)

### 11.3 Carriage assembly

The carriage assembly, including the drive belt, follower rollers, flexi chain, linear slide, must be kept clean and free of any traces of ink and dust to ensure its smooth operation. The complete assembly is accessible by removing the side panels of the machine to gain access. The mains power must be switched and locked off before this operation is undertaken, and a non aggressive cleaner must be used so as not to damage the drive belt and flexi chain.



## 11.4 Low pressure ink supply container & valve



- 1 Ensure container lid inside rim, and gasket are clean and free from ink and contamination
- 2 Check for air leaks around lid
- 3 Check sensor connector cable
- 4 Check level probe is not damaged
- 5 Check air lines for leaks
- 6 Check dispense valve is clean and leak free
- 7 Check that coarse and fine dispense nozzles are clean
- 8 Check hose is clean and leak free
- 9 Ensure pipe clamp is secure
- 10 Check container seam is leak free

# 12 Parts Manual

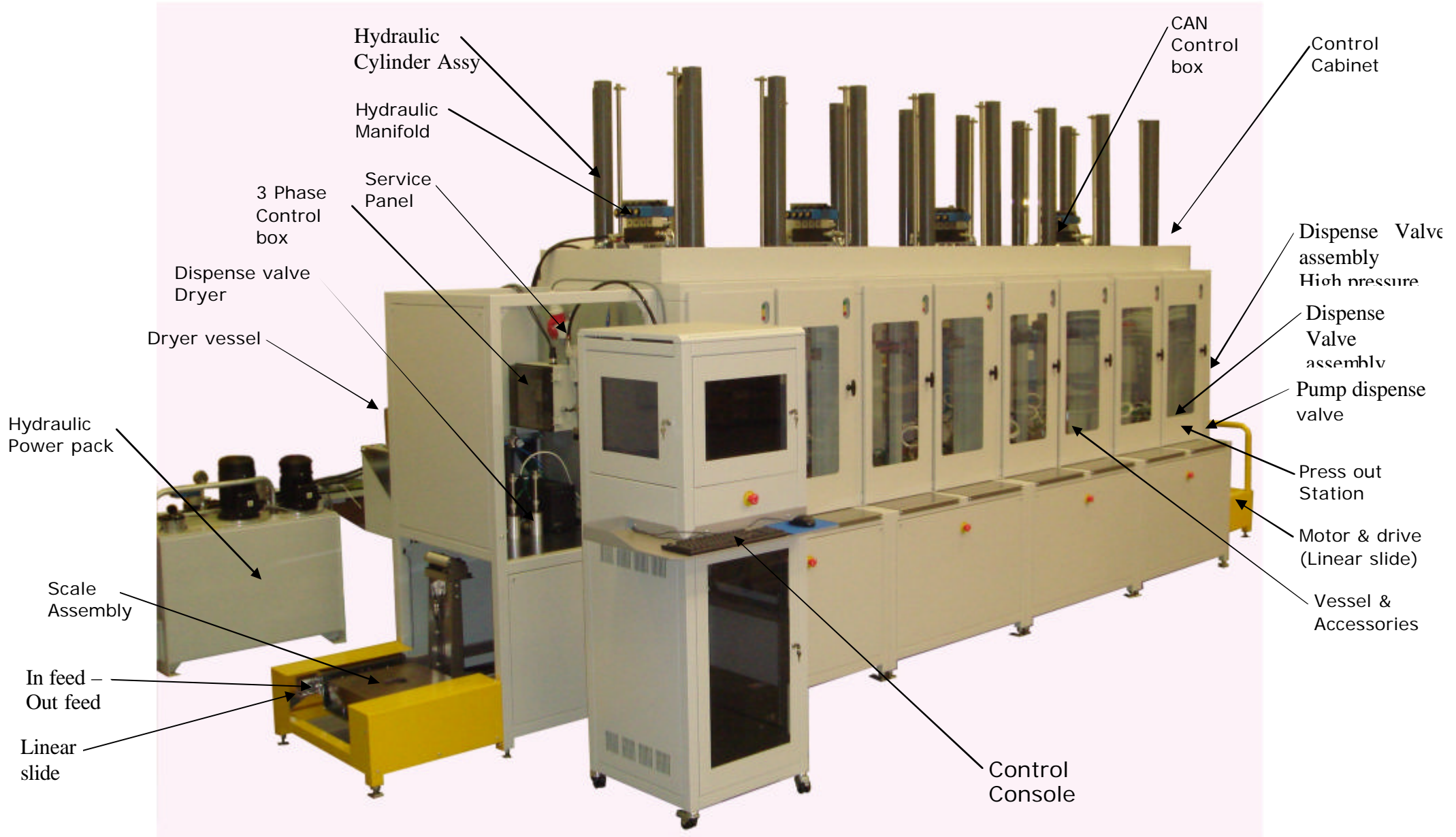
## Index

58	Machine Overview
59	Control Console
60	Service Panel
61	3 Phase Control Panel
62	Control Cabinet
63	CAN Control Box
64	Motor & Drive – Linear Slide
65	In Feed – Out Feed
66	Linear Slide
67	Scale Assy
67	Dispense Valve Assy
69	Dispense Valve High Pressure
70	Dispense Valve Drier
71	Drier Vessel
72	Vessel and Accessories
73	Hydraulic Cylinder Assy
74	Hydraulic Manifold
75	Power pack Drawing
76	Hydraulic power pack Circuit
77	Pressure release Yamada Pump

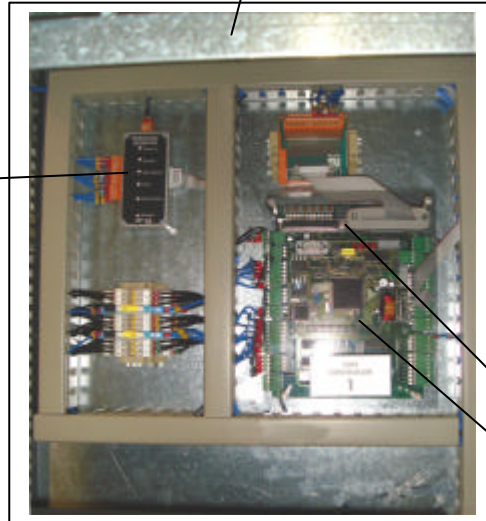
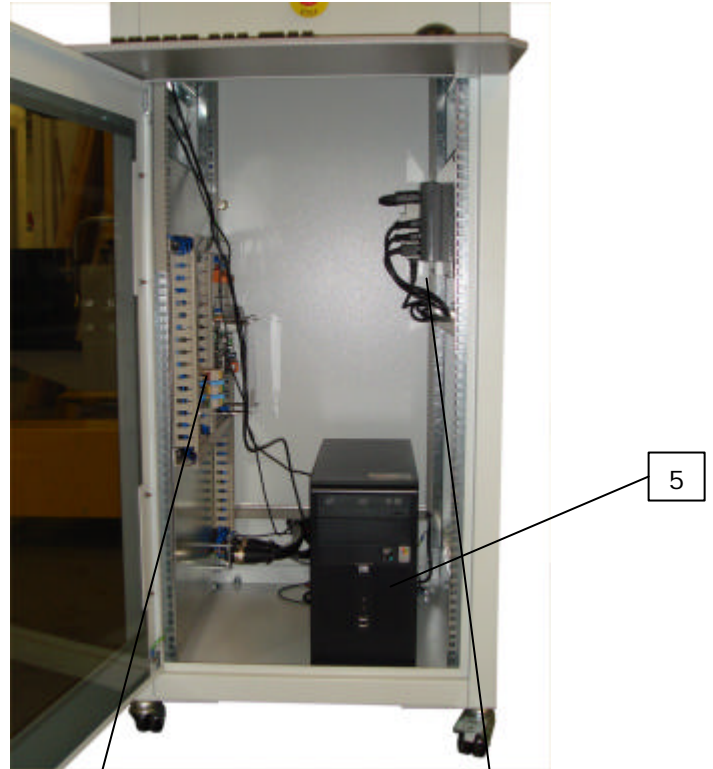
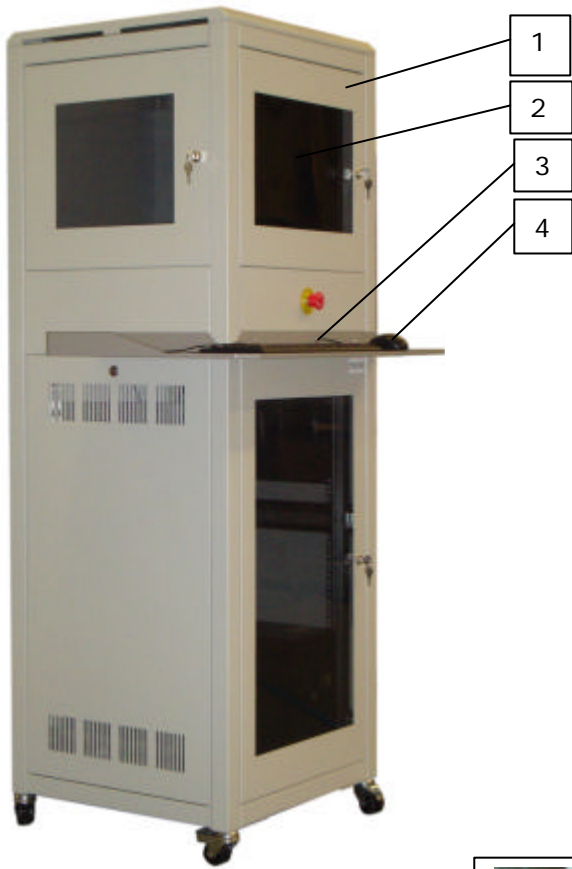




# 16 Colour press out

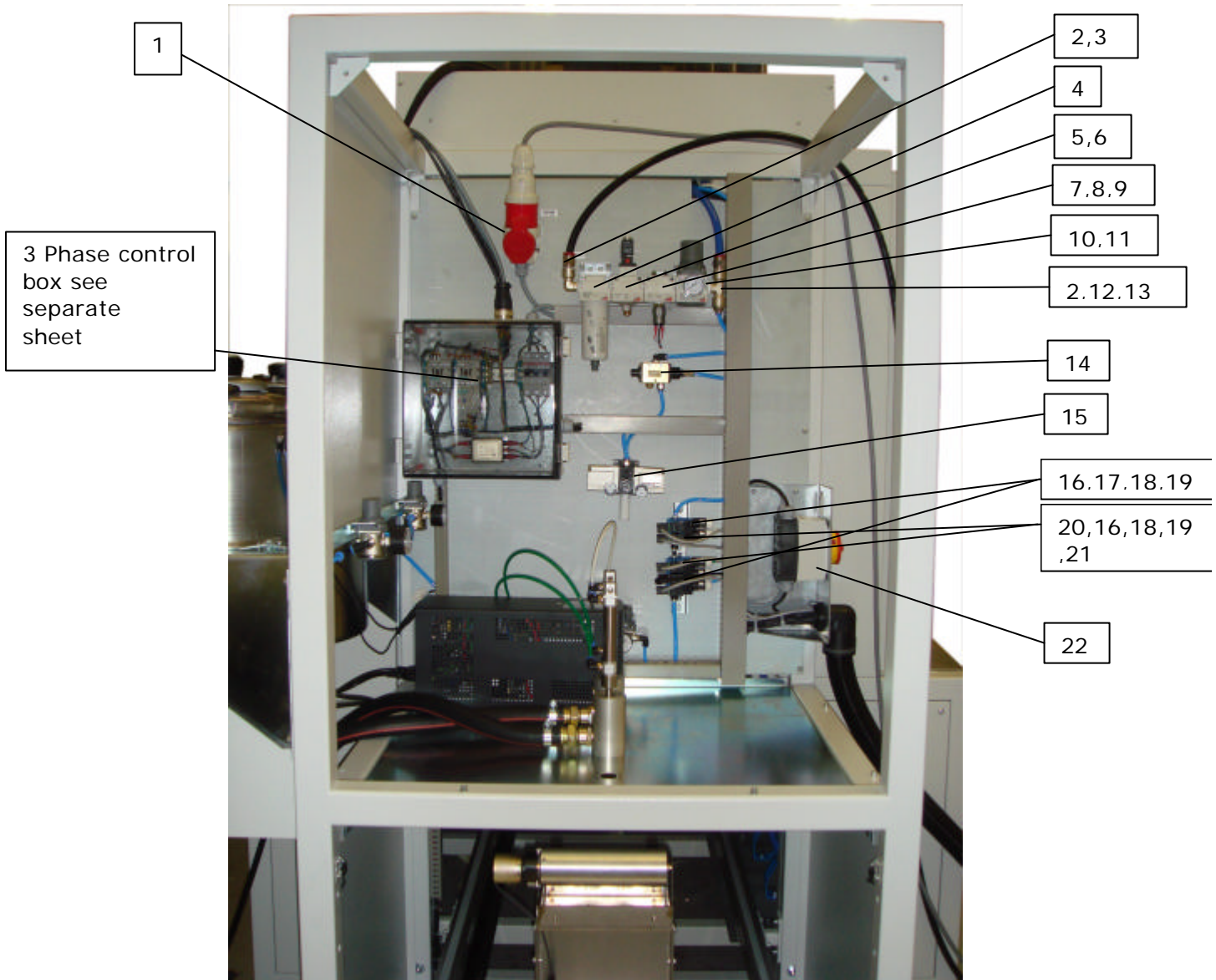


## Control console



Item	Part No.	Description
1	P40-6	Console
2	P40-3	Monitor
3		Keyboard
4		Mouse
5	P40-1	PC
6	P40-340	Motherboard PC1022
7	P40-341	Can control board PC1024
8	P40-344	Shaft encoder interface unit
9	P40-368	MCB

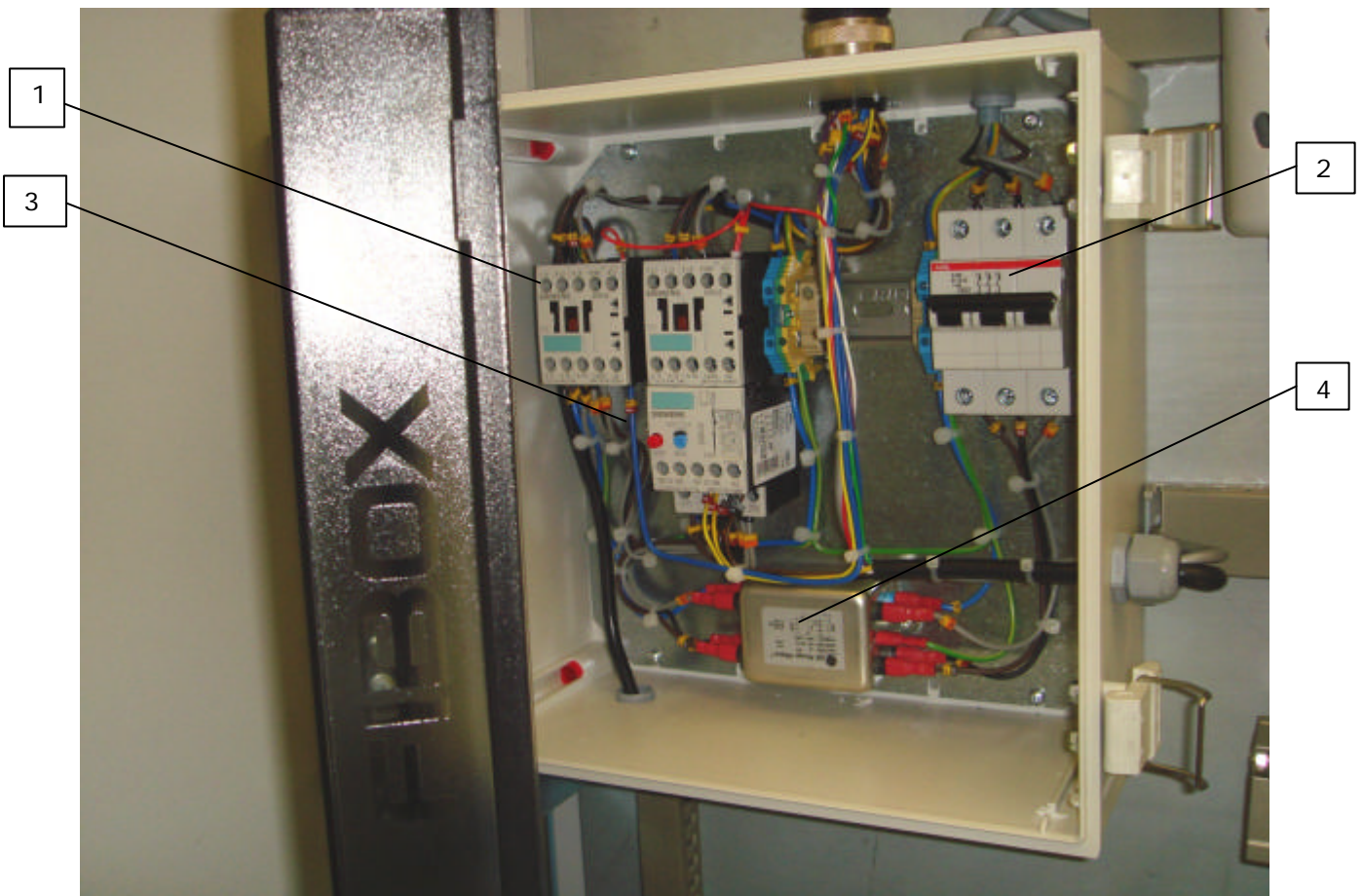
## Services panel



Item	Part No.	Description
1	P40-328	Plug panel mount 3phase +N+E
2	P40-277	Stud coupling 1/2" BSP-16mm
3	P40-278	1/2" M/F Elbow
4	P40-279	Air filter 1/2"
5	P40-282	Isolating valve 1/2"
6	P40-275	Solenoid 24Vdc
7	P40-281	Take off block 1/2"
8	P40-284	Reducing bush 1/2"-1/4" M/F
9	P40-283	Pressure switch
10	P40-285	Pressure regulator 0-10 Bar
11	P40-286	Pressure gauge 0-6 Bar
12		1/2" BSP "Tee" Male centre
13	P40-289	1/2" BSP - 8mm straight adaptor
14	P40-291	3/2 Pilot operated valve 1/4" BSP
15	P40-168	Booster valve
16	P40-271	Solenoid end fitting
17	P40-275	Stacker solenoid valve
18	P40-273	Lead
19	P40-272	Silencer
20	P40-274	End solenoid valve
21	P40-344	Stem - modified
22	P40-317	Power isolator switch

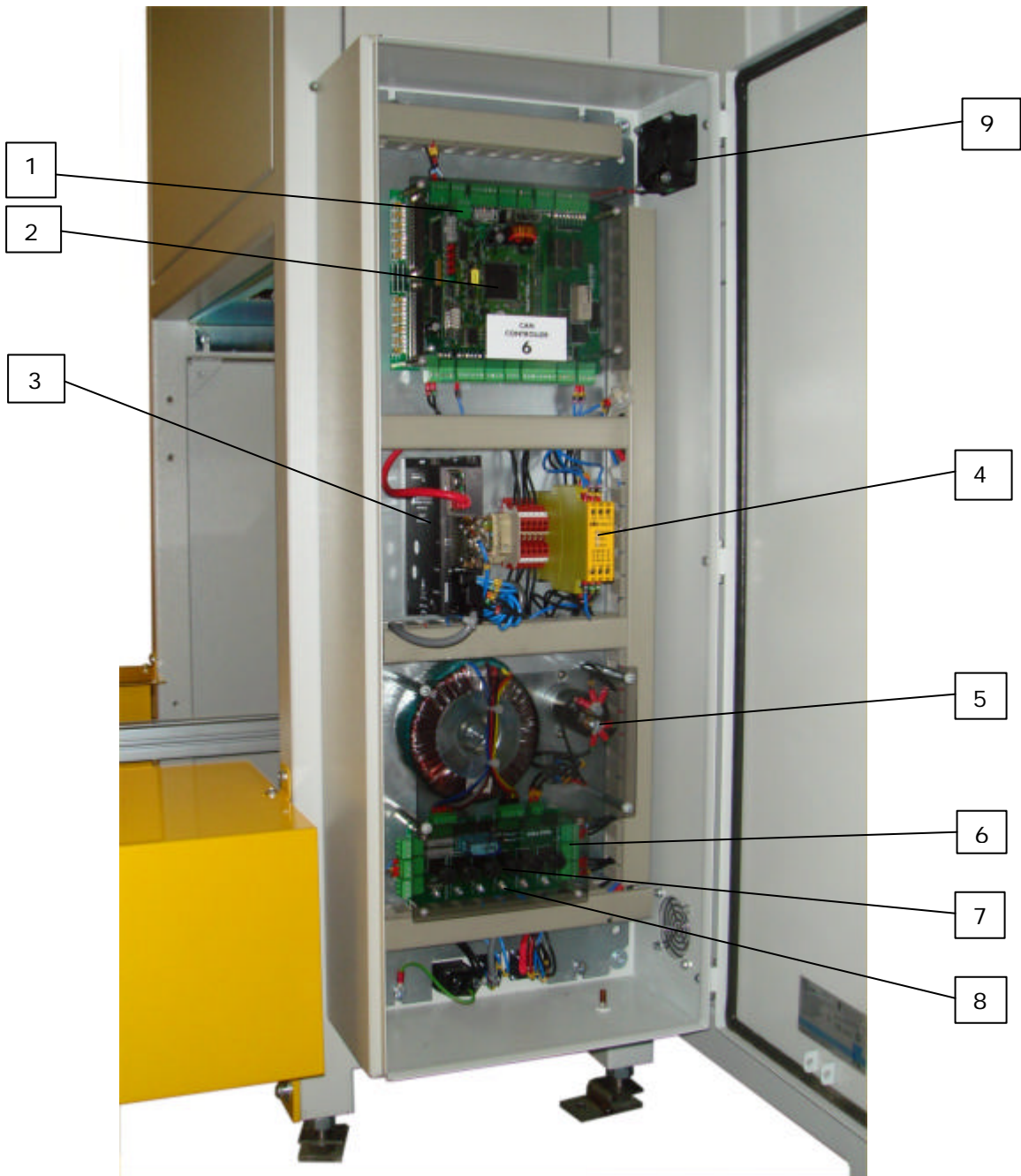


### 3 Phase Control Box



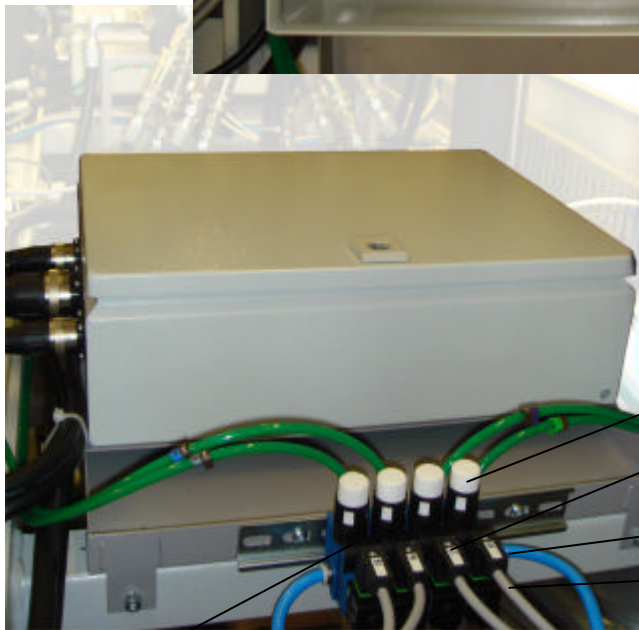
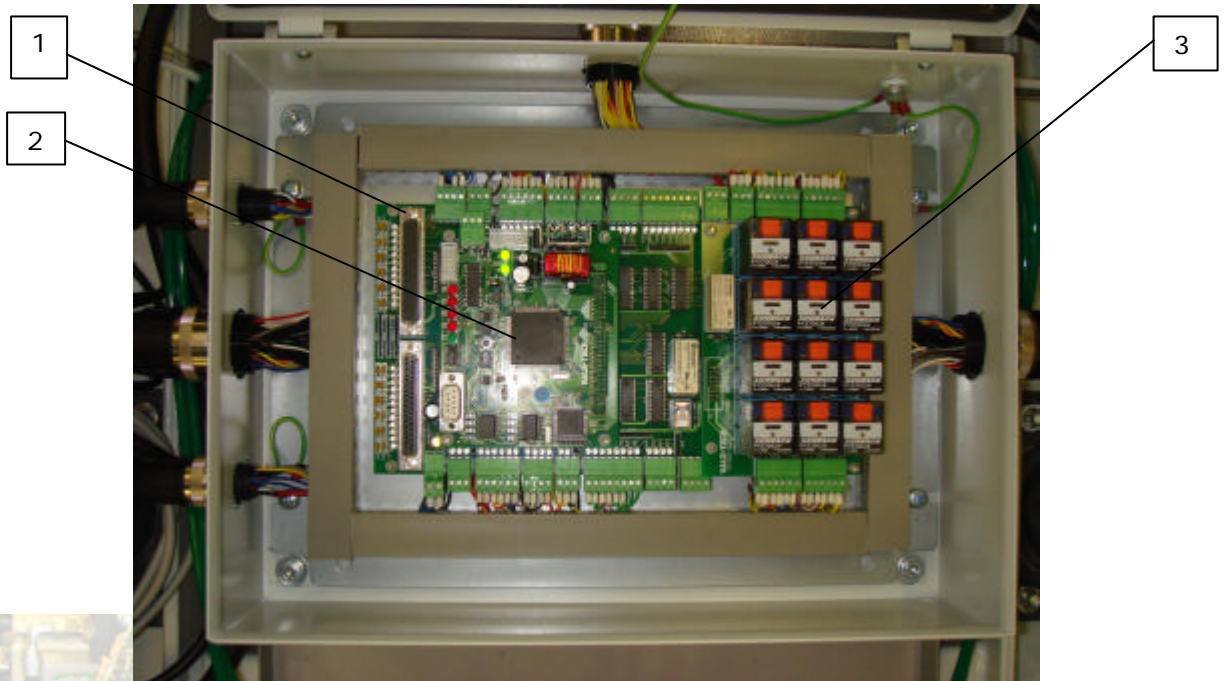
Item	Part No.	Description
1	P40-308	Contactor 9A 24V
2	P40-346	Circuit breaker 10 Amp 3 Phase
3	P40-309	Contactor over current device
4	P40-310	Filter 10Amp 3 Phase

## Control Cabinet



Item	Part No.	Description
1	P40-340	Mother board PC1022
2	P40-341	CAN Control board PC1024
3	P40-187	AMC Servo drive controller
4	P40-170	Pilz relay
5	P40-342	Linear power supply
6	P40-343	Fuse / Indicator board
7	P40-337	20 x 5mm 5A anti-surge fuse
8	P40-338	20 x 5mm 8A anti-surge fuse
9	P40-336	60mm fan 24Vdc

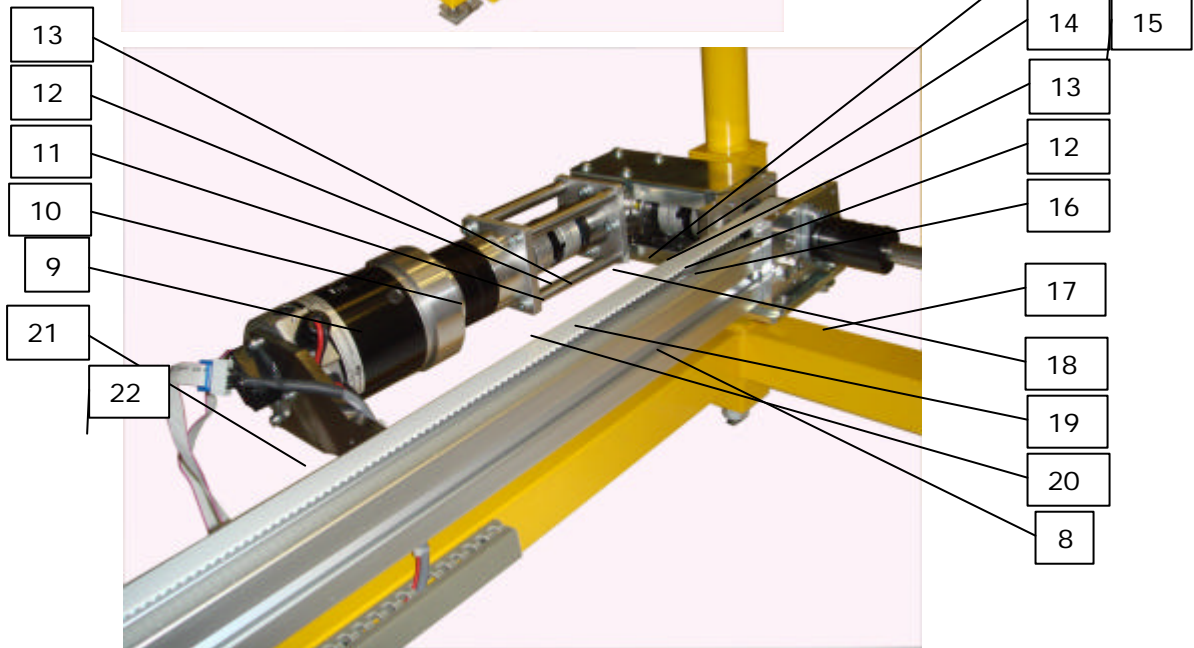
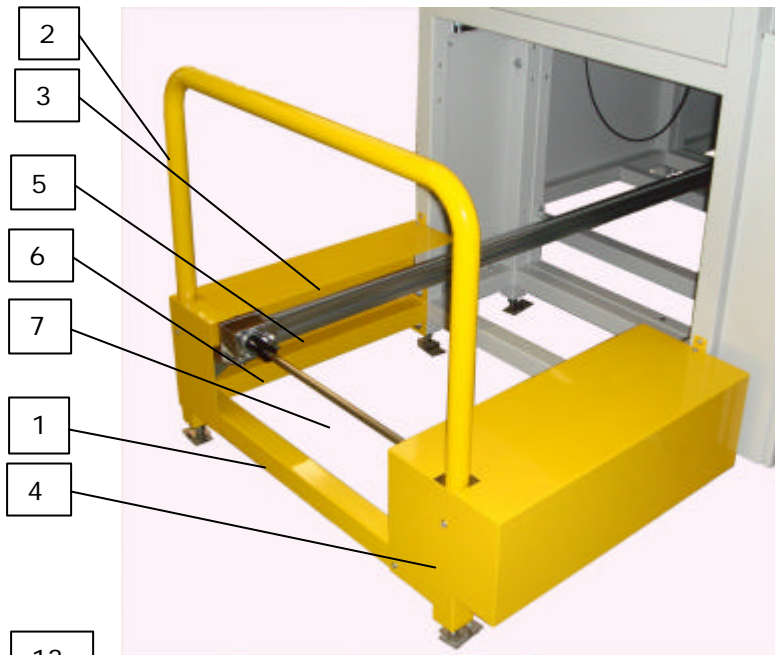
## CAN control box



Item	Part No.	Description
1	P40-340	Mother board PC1022
2	P40-341	CAN Control board PC1024
3	P40-369	Relay board PC1023-1
4	P40-271	Solenoid end fitting
5	P40-274	End solenoid valve
6	P40-275	Stacker solenoid valve
7	P40-272	Silencer
8	P40-273	Lead



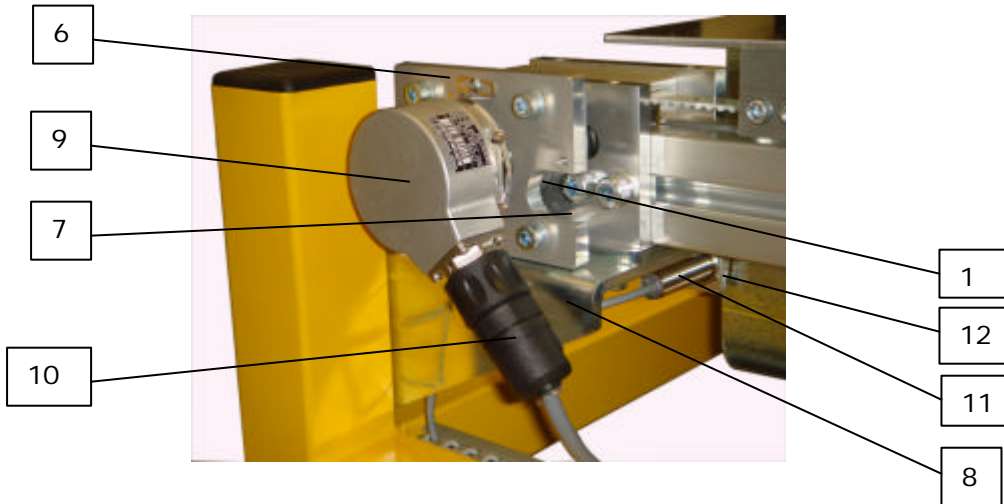
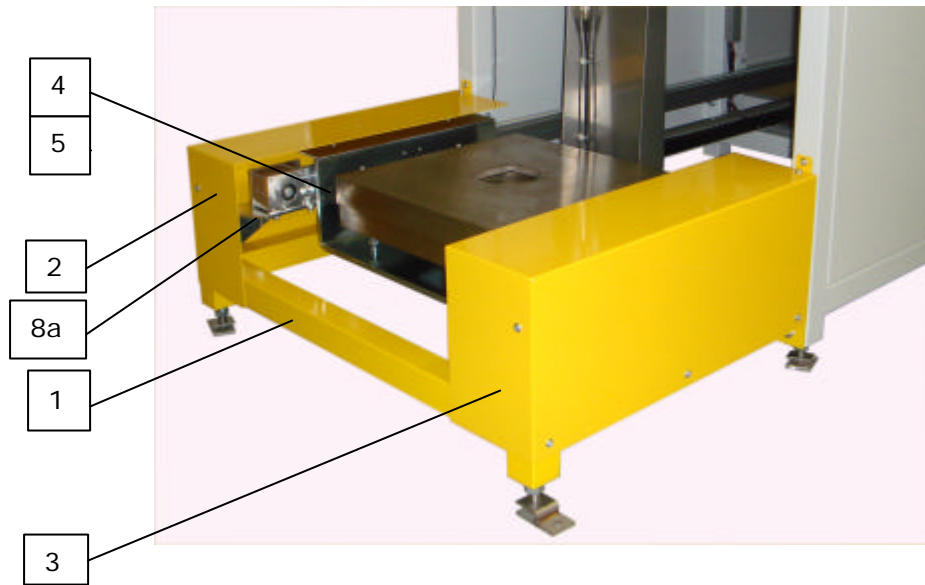
## Motor and Drive



Item	Part No.	Description
1	P40-38	Rear frame – drive support
2	P40-40	Guard rail
3	P40-11	Guard linear slide idler
4	P40-12	Guard linear drive - drive
5	P40-192	Linear slide idler
6	P40-313	Coupling- linear slides
7	P40-194	Shaft linear slide coupling
8	P40-191	Linear slide - powered
9	P40-184	Motor c/w encoder
10	P40-179	Gearbox
11	P40-218	Coupling body 14mm Dia.
12	P40-220	Coupling element
13	P40-222	Coupling body 12mm Dia.
14	P40-39	Bracket – bevel gearbox
15	P40-36	Shim – Bevel gearbox
16	SP9262	Coupling body 15mm Dia.
17	P40-35	Support RH Linear slide
18	P40-156	Mounting plate – Bevel gearbox
19	P40-155	Mounting rods
20	P40-157	Mounting plate – Motor / Gearbox
21	P40-196	Support – Motor
22	P40-371	Shim
23	P40-178	Bevel gearbox

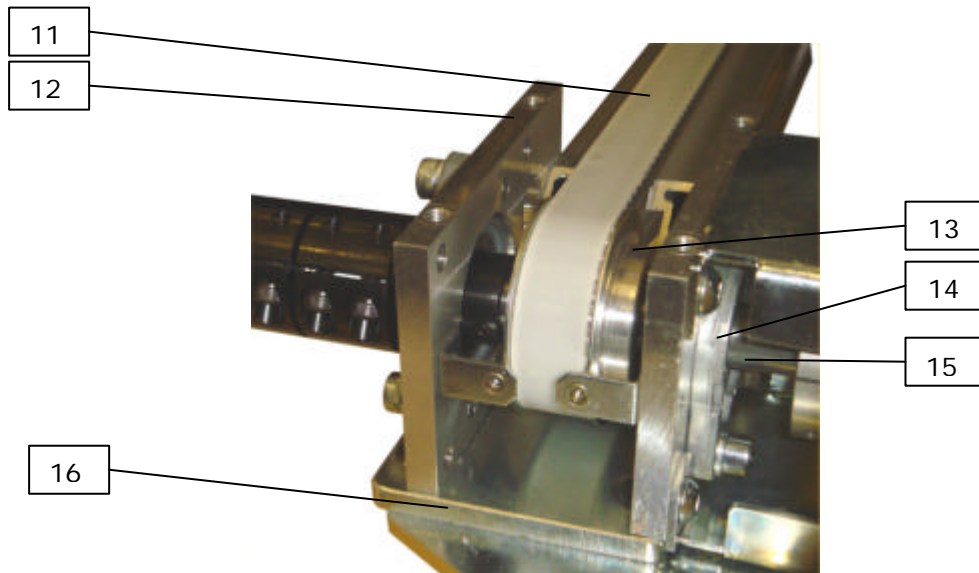
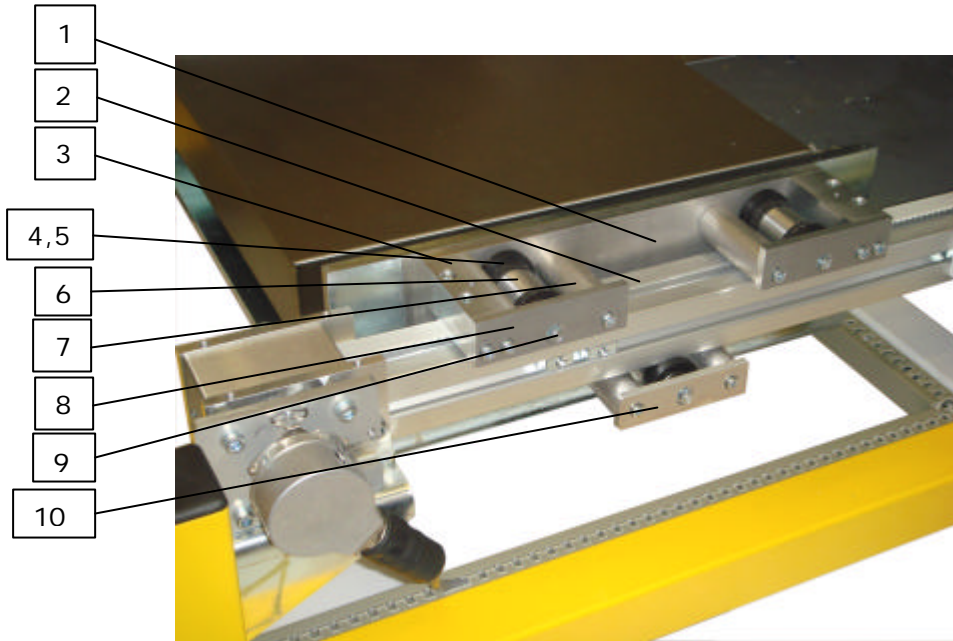


## In feed – Out feed



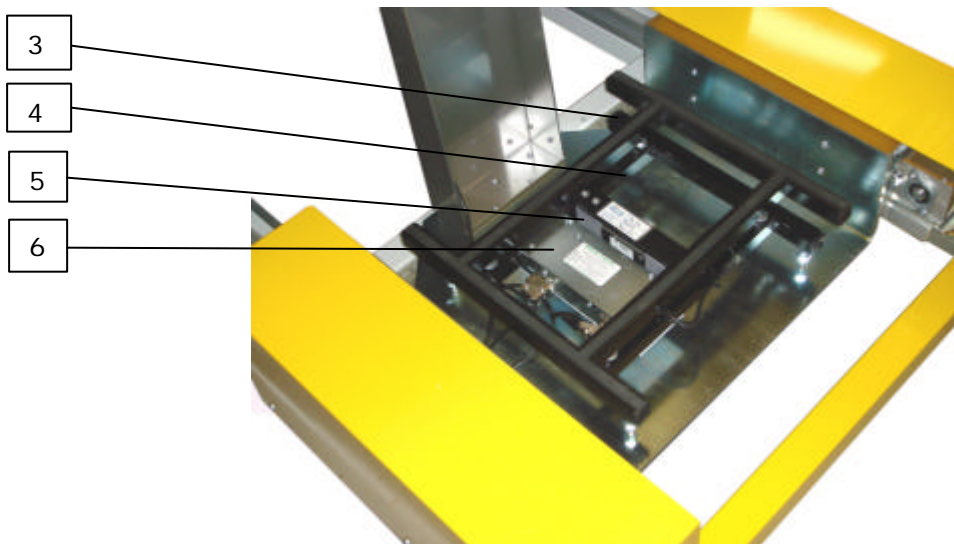
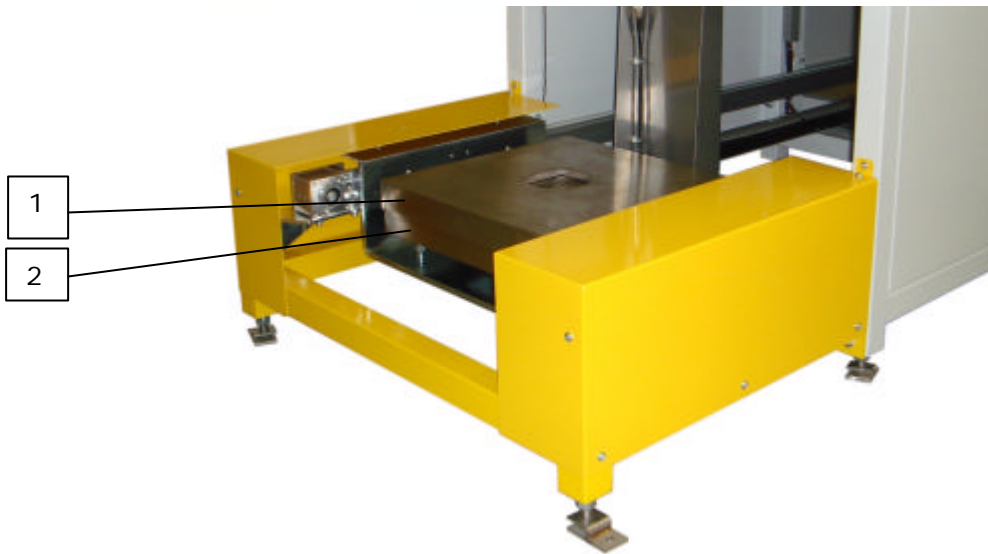
Item	Part No.	Description
1	P40-37	Front frame
2	P40-10	Guard linear slide idler
3	P40-9	Guard linear slide powered
4	P40-60	Carriage
5	P40-61	Carriage shim
6	P40-193	Mounting plate - encoder
7		M6 Hex stand off 15 long
8	P40-34	Support RH Linear slide
8a	P40-35	Support LH Linear slide
9	P40-181	Shaft encoder
10	P40-182	Connector – shaft encoder
11	P40-374	Proximity switch
12	P40-372	Bracket- proximity switch
13	P40-373	Drive shaft – encoder (Not visible)

## Linear slide



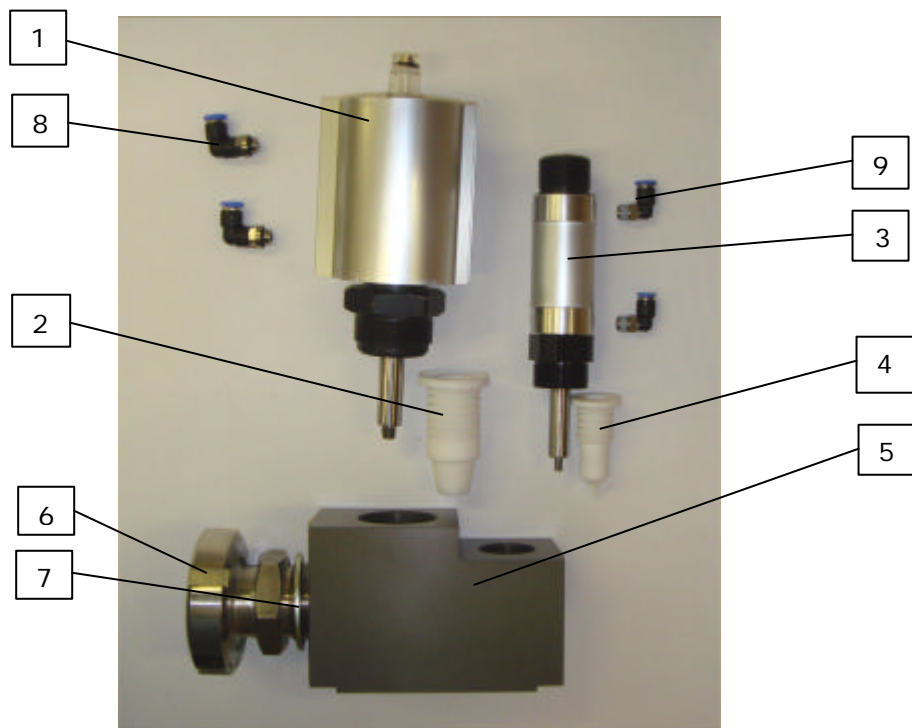
Item	Part No.	Description
1	P40-60	Carriage plate
2	P40-200	Carriage extrusion
3	P40-201	Support outer – axle support plate
4	SP9252	Wheel
5	P40-203	Spacer (not visible)
6	P40-204	Wheel-separator
7	P40-205	Support inner – axle support plate
8	P40-206	Support plate - wheel
9	P40-207	Axle - roller
10	P40-208	Axle support plate
11	P40-209	Belt
12	P40-210	Mounting plate
13	P40-211	Pulley
14	P40-212	Flanged bearing
15	P40-213	Through shaft
16	P40-214	Packing plate

## Scale assy



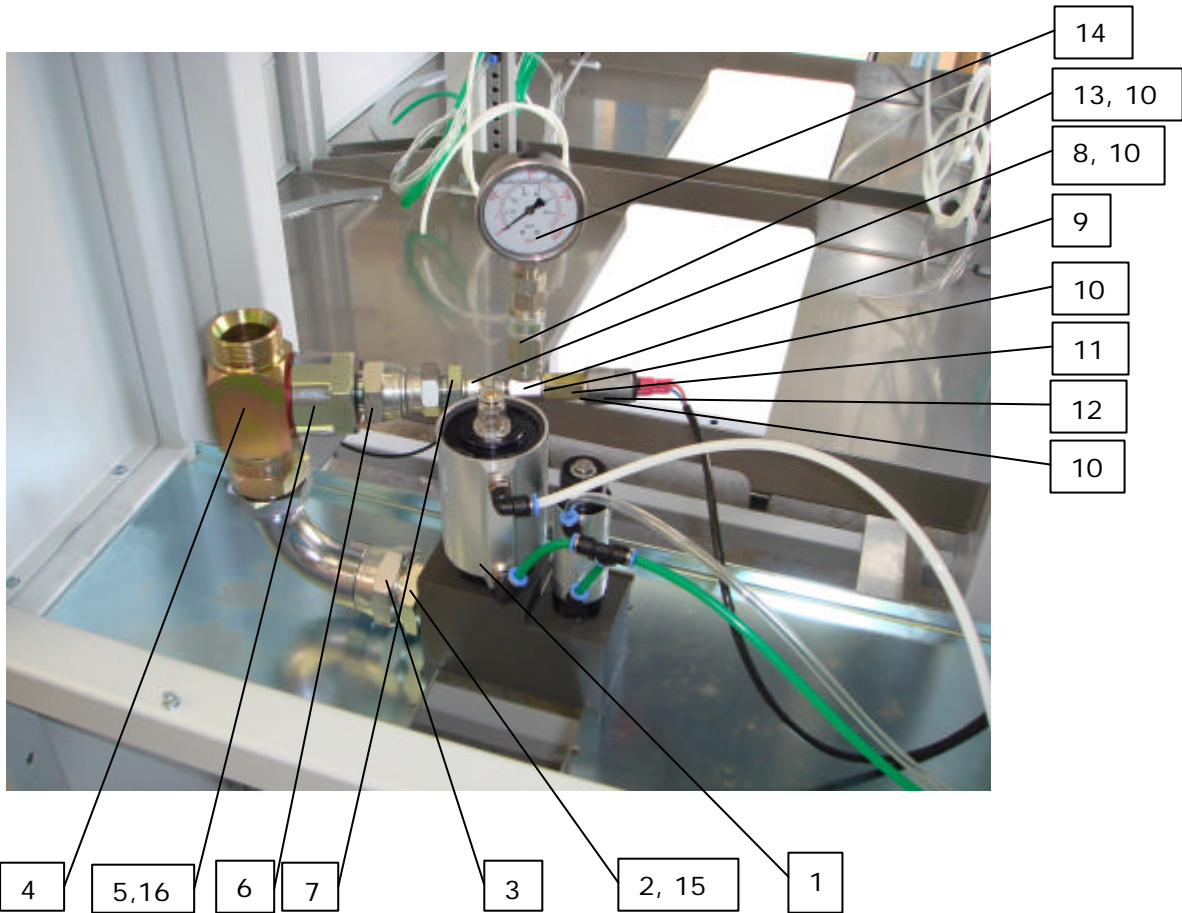
Item	Part No.	Description
1	P40-50	Vessel locator
2	P40-55	Scale cover
3	P40-56	Scale – top frame
4	P40-57	Scale base frame
5	SP9959	Load cell
6	SP9944	Scale box
7	P40-345	Scale 400 Sq 30Kg Capacity

## Dispense valve assembly



Item	Part No.	Description
1	P40-149	Large dispense cylinder
2	P40-172	Conical bellows large
3	P40-150	Small dispense cylinder
4	P40-173	Conical bellows small
5	P40-174	Valve body
6	P40-100	Valve adaptor fitting
7	P40-362	1 1/4" Bonded seal S/C
8		Elbow 1/8"BSPP – 6mm pipe
9		Elbow 1/8"BSPT – 6mm pipe

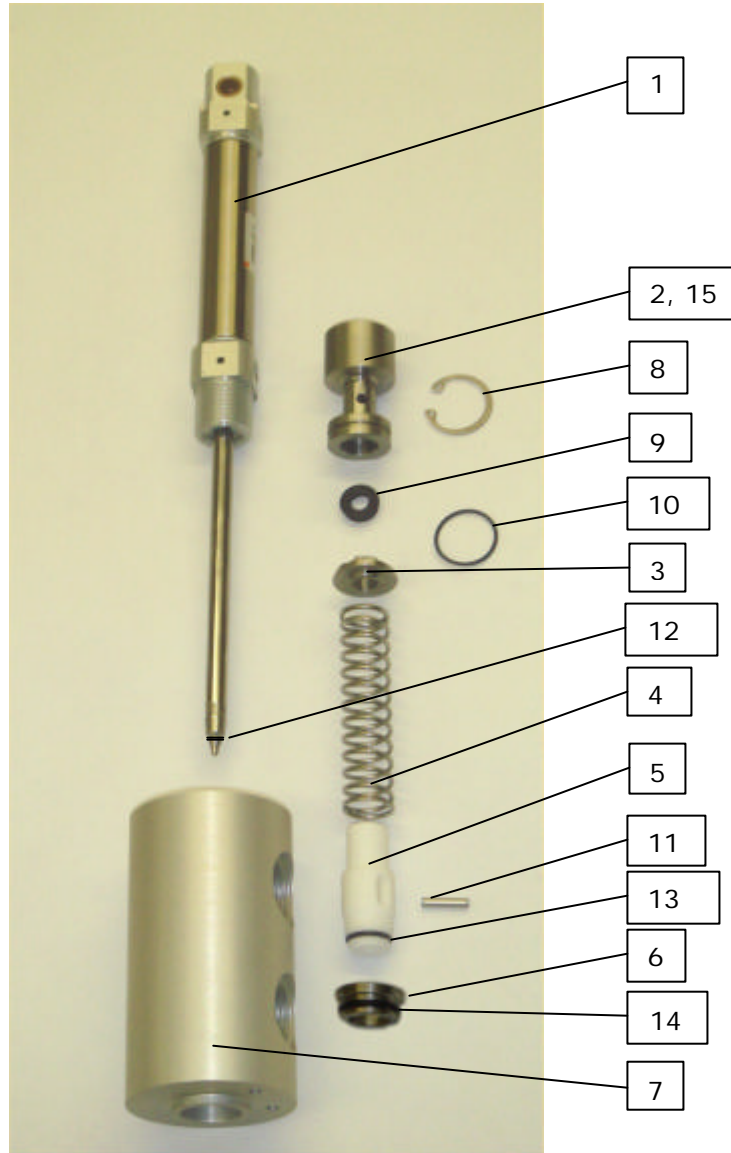
## Dispense valve High pressure



Item	Part No.	Description
1		Valve assy (See Dispense valve assy)
2		1 1/4" - 1 1/2" BSPp M/M Adapter
3		1 1/2" BSPp M/F 90 Degree swept elbow
4		1 1/2" BSPp M/F "Tee" 1 1/2" BSPp Male spur
5		1 1/2" BSPp Fem - 1" BSPp Male adaptor
6		1" BSPp - 3/4" BSPp F/F swivel
7		3/4" BSPp Male - 1/4" BSPp Female reducing bush
8		1/4" BSP M/M Adaptor
9		1/4" BSP p M/F "Tee" 1/4" BSPp Spur
10		1/4" Bonded seal
11		1/4" BSPp Long nut
12		Pressure switch
13		1/4" BSPp gauge adaptor
14		Pressure gauge (For test purposes only)
15		1 1/4" Bonded seal
16		1 1/2" Bonded seal



## Dispense valve drier



Item	Part No.	Description
1	P40-384	3mm Air cylinder
2	P40-383	Seal housing
3	P40-381	Seal retainer
4	P40-385	Spring Stainless steel
5	P40-380	13mm Teflon valve plug
6	P40-378	13mm Valve seat
7	P40-389	Valve body
8	P40-382	Circlip
9	P40-387	Viton "U" Seal
10	P40-386	"O" Ring
11	P40-377	Slotted pin Stainless steel
12	P40-379	"O" Ring
13	P40-376	"O" Ring
14	P40-375	"O" Ring
15	P40-388	"O" Ring
16	P40-390	Complete valve assy

## Drier vessel



Item	Part No.	Description
1	P40-20	25 Vessel c/w lid
2	P40-392	Digitiser Level probe
3	P40-393	1/8" BSP Pressure regulator
4	P40-394	Pressure gauge 0 -4 Bar

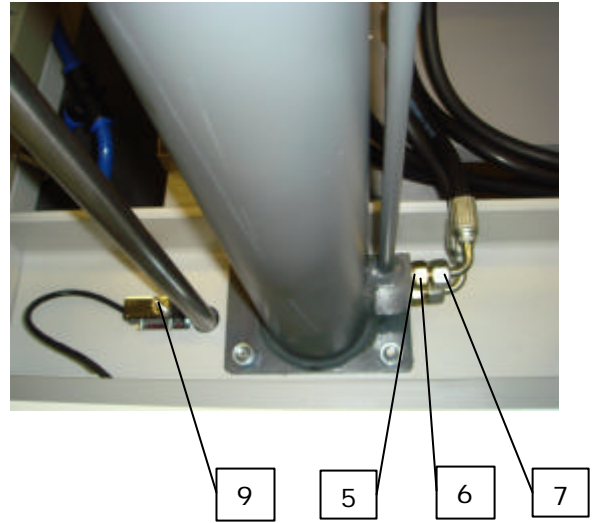
## Vessels and accessories



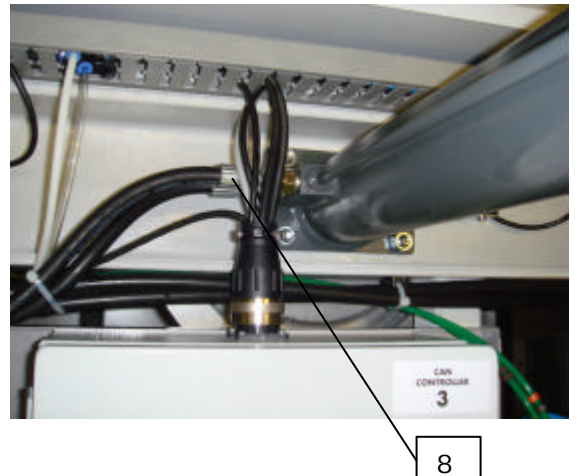
Item	Part No.	Description
1	P40-108	50 Kg Vessel
2	P40-107	100kg Vessel (Not shown)
3	P40-26	100 Kg press out doughnut
4	P40-226	Anti drip diaphragm
5	P40-103	Blanking cap
6	P40-101	Slotted nut
7	P40-314	Adjustable "C" Spanner (Not shown)



## Hydraulic cylinder assembly

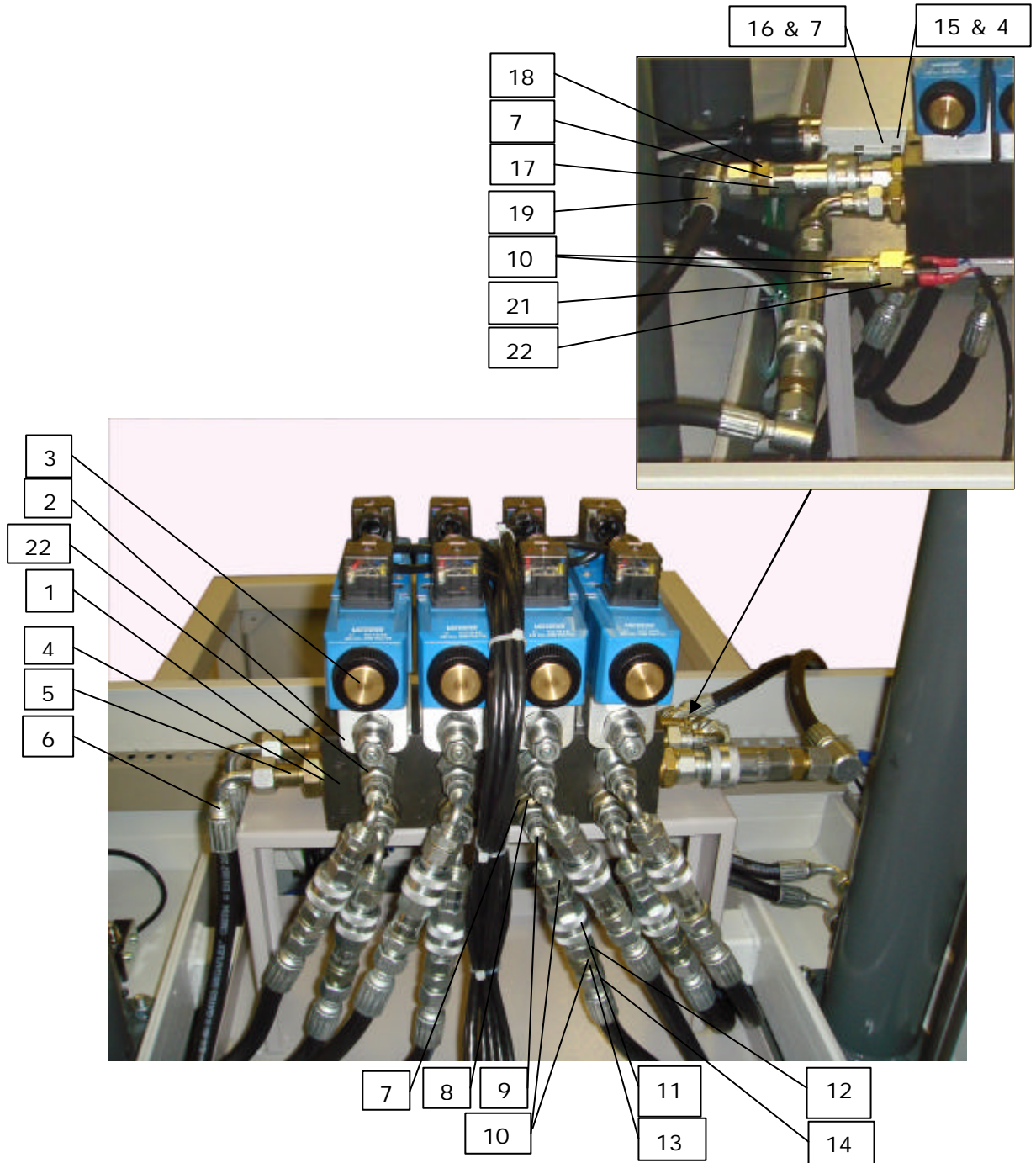


Alternative hose connections under CAN box connector



Item	Part No.	Description
1	P40-144	Hydraulic cylinder 900mm stroke
2	P40-154	Actuator tub empty
3	P40-153	Rod tub empty
4	P40-24	Press out plate
5		¼" BSP bonded seal
6		¼" BSP M/M adapter
7		¼" BSP – ¼" Hose 90 Deg swaged elbow
8		¼" BSP – ¼" Hose straight swaged hose tail
9	P40-323	Switch tub empty
	P40-145	Seal kit – hydraulic cylinder

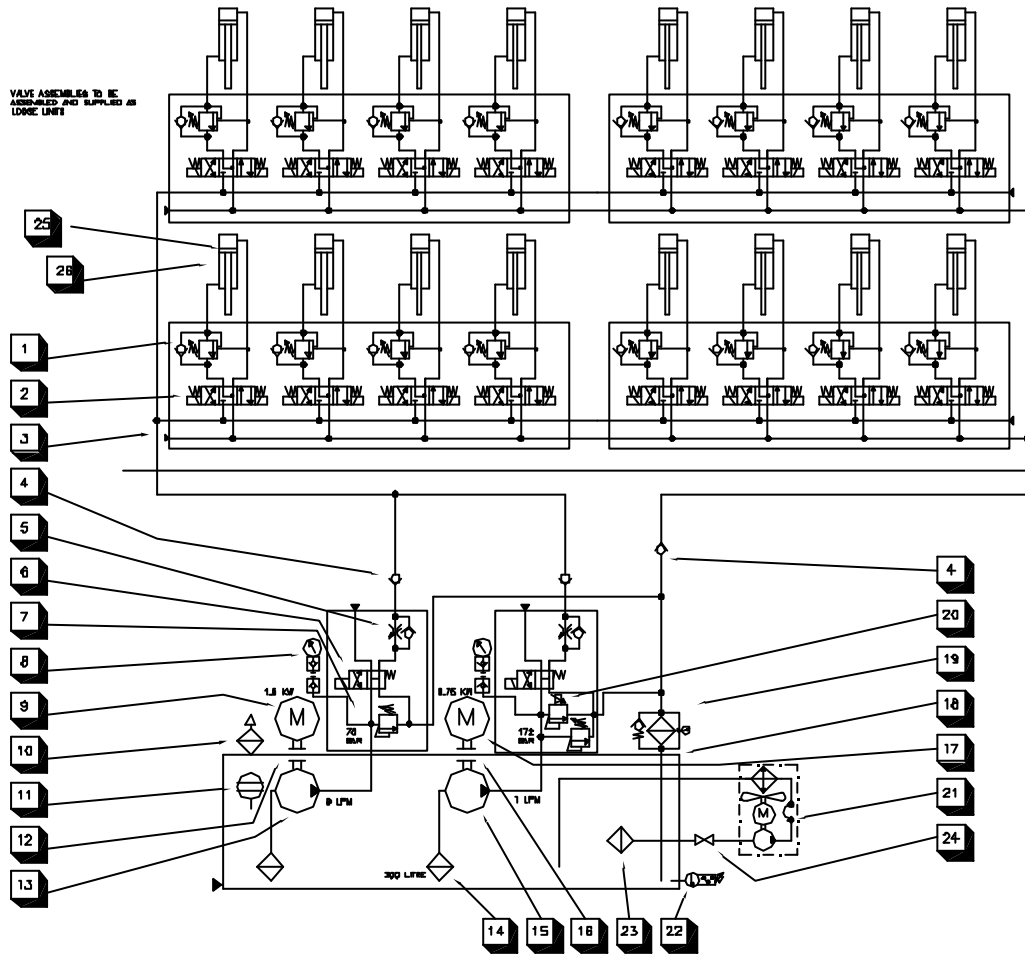
# Hydraulic manifold



Item	Part No.	Description
1	P40-116	4 port manifold 1/2" - 3/8" BSP
2	P40-114	Cetop 3A/B Line counterbalance valve
3	P40-115	Cetop 3 Double solenoid valve
4		1/2" BSP Bonded seal
5		1/2" BSP - 3/8" BSP bulkhead fitting
6		3/8" BSP - 1/4" 90Deg swept hose tail
7		3/8" BSP Bonded seal
8		3/8" BSP - 1/4" BSP M/M adaptor
9		1/4" BSP M/F 90 Deg' swept elbow
10		1/4" Bonded seal
11	P40-266	Female coupling body 1/4" BSP female
12	P40-267	Male probe 1/4" BSP female
13		1/4" BSP M/M adaptor
14		1/4" BSP Fem straight hose tail
15		1/2" BSP - 3/8" BSP M/M adaptor
16	P40-256	Male probe 3/8" BSP Female
17	P40-255	Coupling body 3/8" BSP Female
18		3/8" BSP - 3/8" BSP M/M adapter
19		3/8" BSP - 1/4" Compact hose tail
20		"T" 3/8" BSP M/Fem swivel - 1/4" BSP Male spur
21		1/4" BSP Long nut
22	P40-391	Pressure switch
23		3/8" BSP - 1/4" BSP Bulkhead fitting

Drawing Number:  
P0040-77A

Issue:	Date:	Change:	Sig:
A	9.4.09	FIRST ISSUE	GRA



VALVE ASSEMBLIES TO BE ASSEMBLED AND SUPPLIED AS LOGIC UNITS

ITEM	DESCRIPTION	PART NUMBER	SUPPLIER	QTY.
1	CETOP 3 A/B LINE COUNTERBALANCE VALVE	P40-114	VALETEC	16
2	CETOP 3 DOUBLE SOLENOID VALVE	P40-116	VALETEC	16
3	CETOP 3, 4 STATION MANIFOLD BLOCKS	P40-116	VALETEC	4
4	1/2" CHECK VALVE	P40-117	VALETEC	3
5	CETOP 3 B LINE FLOW CONTROL VALVE	P40-118	VALETEC	2
6	CETOP 3 SINGLE SOLENOID UNLOAD VALVE	P40-119	VALETEC	2
7	CETOP 3 SUBPLATED RELIEF VALVE	P40-120	VALETEC	2
8	0-250 BAR PRESSURE GAUGE GAUGE TEST POINT ADAPTOR TEST POINT	P40-121	VALETEC	2 2 2
9	1.5 KW, 4 POLE, FLANGE MOUNT MOTOR	P40-124	VALETEC	1
10	FILLER BREATHER CAP	P40-125	VALETEC	1
11	FLUID LEVEL GAUGE	P40-126	VALETEC	1
12	BELLOUSING DRIVE COUPLING	P40-127 / 128	VALETEC	1 1
13	GROUP 1 PUMP	P40-129	VALETEC	1
14	1/2" SUCTION FILTER ELEMENT	P40-130	VALETEC	2
15	GROUP 0.5 PUMP	P40-131	VALETEC	1
16	BELLOUSING DRIVE COUPLING	P40-132 / 133	VALETEC	1 1
17	0.75 KW, 4 POLE, FLANGE MOUNT MOTOR	P40-134	VALETEC	1
18	300 LITRE TANK	P40-135	VALETEC	1
19	RETURN LINE FILTER	P40-136	VALETEC	1
20	PROPORTIONAL RELIEF VALVE CETOP 3 BODY	P40-137 P40-138	VALETEC	1 1
	PROPORTIONAL POWER PLUG	P40-139		1
21	OFF LINE OIL COOLER	P40-140	VALETEC	1
22	ADJUSTABLE THERMOSTAT	P40-141	VALETEC	1
23	1" SUCTION FILTER ELEMENT	P40-142	VALETEC	1
24	1" LP BALL VALVE	P40-143	VALETEC	1
25	HYDRAULIC CYLINDER	P40-144	VALETEC	16
26	HYDRAULIC CYLINDER SEAL KIT	P40-140	VALETEC	1

HYDRAULIC CONNECTIONS ARE AS FOLLOWS:-  
P PORT, 1/2" BSP  
T PORT, 1/2" BSP  
A & B PORTS, 3/8" BSP

SUGGESTED PIPE SIZES ARE, 18L

COLOUR IS,

REPLACEMENT FILTER ELEMENTS ARE,  
ITEM 19, MF 100 2 A10 HB

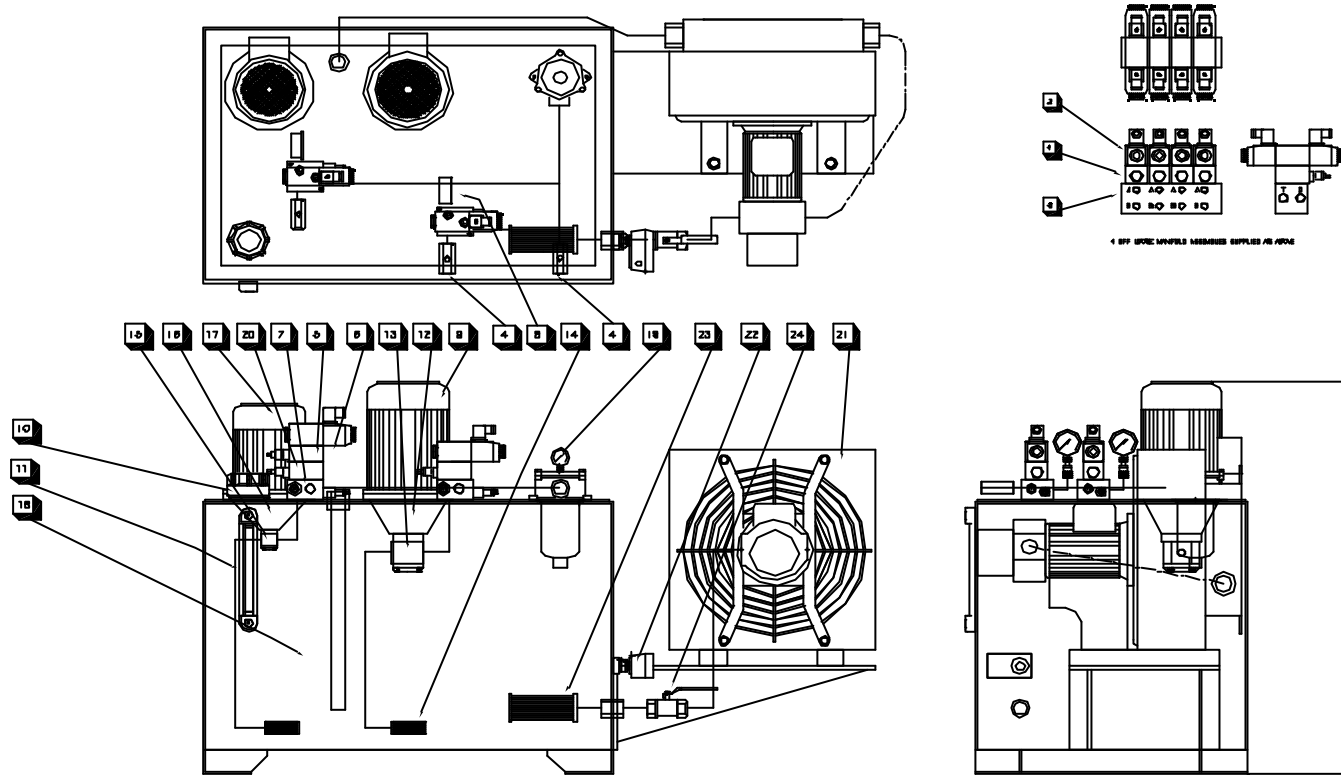
ELECTRICAL CONTROL VOLTAGE IS, 24 V DC  
LIGHT PLUGS TO BE FITTED

Scale: ~	THIRD ANGLE	Unstated Tolerances 0 Dec Pl ±0.5mm 1 Dec Pl ±0.2mm 2 Dec Pl ±0.1mm 3 Dec Pl ±0.05mm	TITLE:	PROJECT: DIC TRADING MALAYSIA	Type:
Drawn: GRA			HYDRAULIC POWER PACK		DRAWING NUMBER: P0040-77A
App'd:	Material: SEE DRG		<b>VALE-TECH</b>		Sheet 2 of 2
Start Date: 9.4.08	Finish:		<small>THIS DRAWING IS CONFIDENTIAL AND MUST NOT BE COPIED OR DISCLOSED WITHOUT WRITTEN CONSENT</small>		DOS FN

M4

Drawing Number:  
P0040-77A

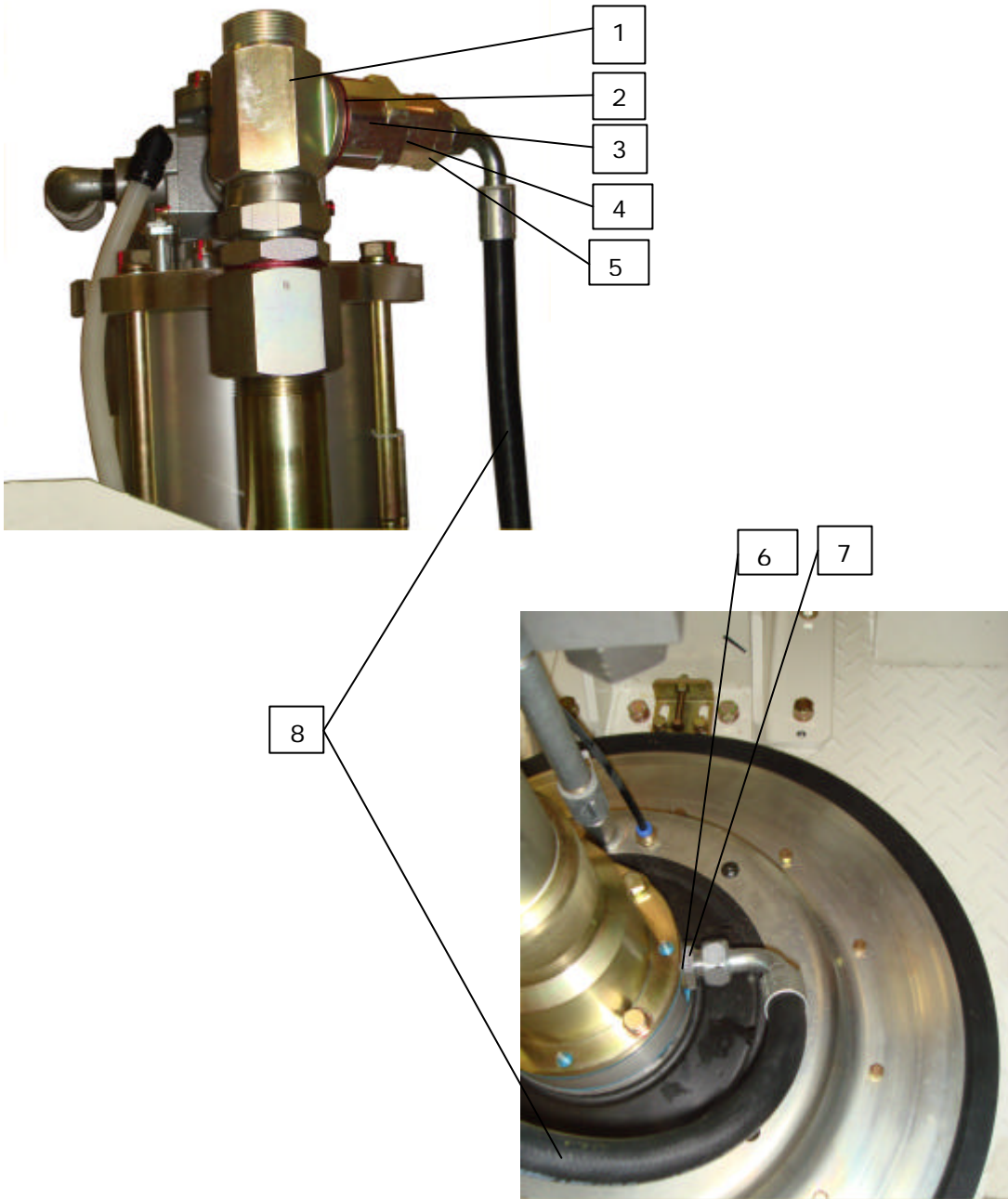
Issue:	Date:	Change:	Sig:
A	9.4.09	FIRST ISSUE	GRA
D	29.7.08	P & T PORT SWAPPED	GRA/JC



Scale: ~	THIRD ANGLE	Unstated Tolerances: 0 Dec Pl ±0.5mm 1 Dec Pl ±0.2mm 2 Dec Pl ±0.1mm 3 Dec Pl ±0.05mm	TITLE: HYDRAULIC POWER PACK	PROJECT: DIC TRADING MALAYSIA	Type:
Drawn: GRA					DRAWING NUMBER: P0040-77A
App'd:	Material: SEE DRG		<b>VALE-TECH</b>		Sheet 1 of 2
Start Date: 9.4.08	Finish:		© THIS DRAWING IS CONFIDENTIAL AND MUST NOT BE COPIED OR DISCLOSED WITHOUT WRITTEN CONSENT		DGS FN

A4

## Pressure release Yamada pump



Item	Part No.	Description
1		1 1/2" BSP "Tee" m/f Male spur
2		1 1/2" Bonded seal
3		1 1/2" BSP Fem - 1" BSP Male reducer
4		1" Bonded seal
5		1" BSP Fem - 1/2" BSP Male reducer
6		1/2" BSP Bonded seal
7		1/2BSP M/M Adapter
8	P40-358	Pressure relief hose

## 13 Preventative Maintenance Programme

Scale unit	<p>Check: Comms and power lead are securely connected Scale feet are located correctly and balance is level Balance calibration <b>WEEKLY</b> Locator plates are clean &amp; undamaged Excessive ink on scale and scale support Container sensor and reflector are clean and functioning <b>AS NECESSARY</b></p>
Carriage	<p>Check: Drive belt, carriage follower rollers and scale unit support castors are free from ink and dust contamination Check linear drive belt for alignment for wear and tear Carriage runs smoothly to its full extent at even speed Linear slide and scale unit support rail are free from ink and dust contamination Roller switch actuator shows no sign of damage and activates all of the roller switches <b>WEEKLY</b></p>
Dispense valves	<p>Check: Base of valves are clean Ink leakage from actuator fittings Check air lines to actuators are secure and not leaking <b>EACH TIME CONTAINERS ARE CHANGED OR WEEKLY</b> Flow rate configuration <b>WEEKLY</b></p>
Air system	<p>Clean: Filter and ensure air pressure is set to minimum 82psi (6 bar) <b>WEEKLY</b></p>
Ink containers	<p>Check: Air settings to ink valve actuators and adjust as required Ink supply container vent valves for damage or air leaks <b>WEEKLY</b></p>
General	<p>Check machine for cleanliness and for mechanical integrity <b>WEEKLY</b></p>
General	<p>Clean drip wipe roller and doctor blade, and empty drip wipe tray <b>AS NECESSARY</b></p>
General	<p>Check main air pipes and fittings, and electrical cables and fittings for signs of wear <b>WEEKLY</b></p>
General are	<p>Check safety switches on each ink station door and emergency stop buttons functioning correctly <b>DAILY</b></p>
General	<p>Check and report any mechanical damage or signs of misuse <b>AS NECESSARY</b></p>



IF IN ANY DOUBT, DO NOT USE THE MACHINE UNTIL A VALE-TECH OR AN AUTHORISED SERVICE AGENT HAS CLARED THE MACHINE FOR USE.

## 14 Trouble-shooting Guide

PC		
IDS power is on but no light on at front of PC.	No Power.	<p>Press 'on' button at front of PC.</p> <p>If LED still not on, check that Power Supply Switch at back of PC is on, then press PC 'on button'.</p> <p>Check Power cable is secure, press PC 'on' button</p>
PC LED is on but no display.	<p>No Display LED.</p> <p>Display LED is on.</p> <p>Display LED is amber or red.</p>	<p>Check monitor is switched on, press button on front of display.</p> <p>Check Monitor cable at back of PC is secure/plugged in, turn monitor off then on again.</p> <p>Display is stuck in power save mode, turn monitor off then on again.</p>
PC not getting into windows.	<p>Reports Keyboard error.</p> <p>Error message: Hard Disk or Boot device.</p> <p>Registry device/files error message.</p> <p>Hangs loading Windows, no error message displayed.</p> <p>PC still not getting into Windows.</p>	<p>Ensure keyboard is secure/plugged in then re-boot.</p> <p>Hard disk fault; call Vale Tech Technical Support.</p> <p>Call Vale Tech Technical Support.</p> <p>Re-boot with 'Ctrl+Alt+Del' keys or switch PC off, then on again.</p> <p>Call Vale Tech Technical Support.</p>
Monitor screen has turned dark but PC is switched on.	Monitor appears to be broken or switched off	<p>Check monitor power is switched on.</p> <p>Check monitor is not in power-save mode by pressing a mouse button or keyboard space bar.</p>
Machine does not work at all.	No power to PC or machine. Machine appears to be dead.	<p>Check mains power to machine.</p> <p>Check Isolator switch is in 'ON' position.</p> <p>Check PC is switched ON.</p>

Pressout Dispenser		
Slow dispense	Valve configuration	If only one colour in a dispense is a problem, check flow rate settings
	Dispense valve	Check ink has not solidified in container or valve body  Check ink has not dried in dispense valve outlet
	Actuator	Check integrity of actuator operation
	Hydraulic pump	Check actuator bellows for damage  Check pump is operating, and if so, to correct pressure as dispense is started  Check for correct hydraulic oil level in pump sight glass  Check for leaks in hydraulic lines from pump to manifold  Check for leaks at hydraulic manifold  Check for leaks in hydraulic lines from manifold to cylinder
High and low pressure containers	Low/no air pressure.	Check air pressure regulators with containers, (if used), turned off.  Valve actuator = 6+bar, and if used, high pressure container = 6bar, low pressure container = 1bar. If low check air supply is good at source first, then adjust gauges to specified pressures. Check for air leaks.
	Air leaks at supply container.	Check and clean gaskets and lids of high and low pressure containers if used. All sealing surfaces must be clear of ink or contaminants.  Check lids are securely closed.
	Air leaks from lid fittings.  No air pressure in container.	Check 'air in' lines are secure, push firmly into container vent finger valves.  Require engineer adjustment or replacement.

<p>High and low pressure containers (cont)</p>	<p>Containers not pressurising fast enough</p> <p>No apparent air leaks.</p>	<p>Check lid is closed and air is turned on.</p> <p>Turn all containers off, and then turn each container on individually allowing each container to pressurise before next is turned on.</p> <p>Check flow rates set in 'Valve Configuration' settings set up have not been set too low</p>
<p>Machine will not reset.</p>	<p>Beacon light flashes from green to red.</p> <p>Emergency Stop activated.</p> <p>All doors are closed.</p>	<p>Close any doors with sensor switches.</p> <p>Release Emergency Stop switch.</p> <p>Faulty switch, call Support.</p> <p>Call Vale Tech Technical Support.</p>
<p>Ink level indicators are incorrect</p> <p>(High and low pressure containers)</p>	<p>High level of residual ink in pressout ink containers</p> <p>Empty pressout ink containers not registering empty</p> <p>The ink level sensors are not reading or are reading incorrectly.</p> <p>Ink level sensors appear to be reading incorrect full or empty levels</p>	<p>Check mechanical stops are set correctly</p> <p>As above</p> <p>Ensure digitisers on containers are fully plugged in and working properly.</p> <p>Check min &amp; max levels have been set correctly in Ink Manager</p>
<p>Balance errors.</p>	<p>There is no weight output or the weight shown is incorrect.</p>	<p>Check the calibration of the scale unit and if necessary, recalibrate</p> <p>Check cables are plugged in securely and that they are not trapped between the scale top plate and the load cell</p> <p>Check settings in ink manager are the same as settings in the Hardware Configuration section of this manual.</p>

<p>Linear carriage will not move.</p>	<p>Machine resets ok but linear carriage will not move.</p>	<p>Check all doors are all securely closed.</p> <p>Check 20mm Stepper Motor Driver Board protection fuse located on electrical chassis</p> <p>Check linear carriage, scale support castors, carriage follower rollers and linear carriage belt for traces of contamination</p>
<p>Green Mains power indicator bulb is no longer lit on the front panel</p>	<p>Green Mains power is no longer lit on the front panel of the machine.</p>	<p>Service personnel to check the mains power supply bulb has not blown, fit a replacement if necessary.</p>
<p>One or more of the beacon Red/Amber/Green bulbs are not operating</p>	<p>Not lit during the normal operating cycle of the machine.</p>	<p>Check each of the beacon bulbs have not blown, fit replacements if necessary.</p>
<p>Warning message 'Feed rate too slow' appears during a dispense.</p>	<p>Machine will not dispense ink from valves.</p>	<p>Check main air supply is switched on.</p> <p>Check the lid of the ink container is correctly fitted and the air tap is turned to the 'ON' position.</p> <p>Service personnel to check air regulator settings are correct inside electrical chassis.</p>

<p>My machine problem is not listed here, what do I do now...?</p>	<p>A Comprehensive list of <b>Technical Bulletin Guides</b> Have been produced to help <b>you</b> to resolve the problem. These are available from Vale-Tech</p>	<p>Contact your Authorised local Service Agent or contact</p> <p>Vale-Tech Ltd direct on:</p> <p>Tel: +44 (0) 1638 668593 Fax: +44 (0) 1638 676720</p> <p>Email: <a href="mailto:technical.support@vale-tech.co.uk">technical.support@vale-tech.co.uk</a></p>
--	--	---

## 15 PC Hardware Configuration

The following information is recorded during the final quality control checks and reflects the PC configuration prior to shipping. Any changes made to the configuration after this may not be recorded. This record may provide essential information in restoring system operation in the event of system failure. Please do not remove it from this folder.



## 16 Ink Manager Hardware Configuration

The following information is recorded during the final quality control checks and reflects the Ink Manager Hardware configuration prior to shipping. Any changes made to the configuration after this may not be recorded. This record may provide essential information in restoring system operation in the event of system failure. Please do not remove it from this folder.

## 17 Drawings

The following drawings are provided for use by plant engineers/authorised service engineers to assist in the servicing of the IDS and for diagnostic purposes.

### Electrical

Main Circuit Diagram

Lead 1

Lead 2

Lead 3

Lead 4

Lead 5

### Pneumatic

Circuit Diagram 1

Circuit Diagram 2

Circuit Diagram 3 (Dependant upon machine specification)

### Hydraulic

Circuit Diagram 1

## 18 Ink Manager Software

The Ink Manager Software Training Manual that follows will provide you with the information you need to use all the advanced functions and features, along with basic instructions necessary for simple operation of the software. It can also act as a complete package for structured on-site training.

## 19 SERVICE LOG

This Service Log serves to provide contact information; should additional assistance be required please refer to the contact details supplied below. Forms available at the end of this section allow space for the service history of the machine to be recorded for future reference.

### 19.1 Contact Information

If you require any additional assistance or have any queries, please contact

## Vale-Tech

Telephone: +44 (0) 1638 668593

Fax: +44 (0) 1638 676720

Email: [technical.support@vale-tech.co.uk](mailto:technical.support@vale-tech.co.uk)

Website: [www.vale-tech.co.uk](http://www.vale-tech.co.uk)

Address:

**VALE-TECH LIMITED**

Unit 12  
Depot Road  
Newmarket  
Suffolk  
CB7 0AL  
UK

## 20 Service History

### 20.1 Machine Fault/Maintenance Log

<u>Date</u>	<u>Action Taken</u>	<u>Signed</u>

Machine Fault/Maintenance Log (cont).

Date

Action Taken

Signed
